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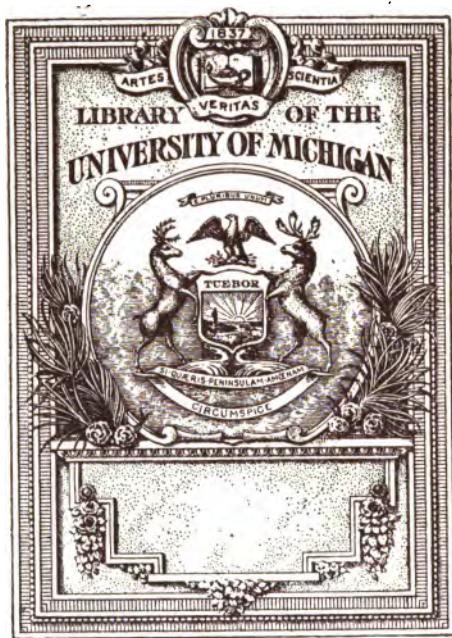
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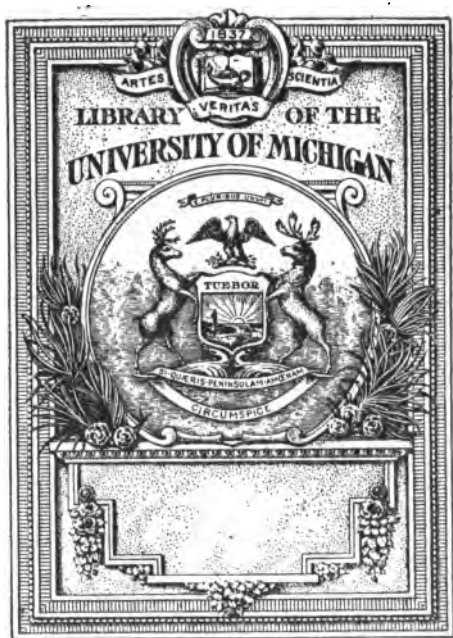


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PREFACE



STUDENTS OF PHARMACY, we greet you. Here is our hand—SHAKE! We know your toils and pains, and would gladly aid you in your difficult vocation. Here is a little volume for you. It originated from a list of questions prepared and circulated by a class of Pharmics who were striving to hunt out the technicalities from the leading authors as a preparation for a State Examination. The questions enabled all of them to pass the State Board, and now these questions, together with many others, are tendered to you.

Our only apology for thus playing the author is that even a child may ask questions that a philosopher cannot answer. Rest assured, we shall be content to be the inquisitive child until you become the philosopher by learning to answer all of the questions we shall ask. Hoping for such splendid results, we commend this, our pride, to our Pharmic friends, and trust them for the rest.

THE AUTHORS.

Ada, Ohio, June 1, 1896.

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INTRODUCTION

No subject is more intricate than Pharmacy and its attendant branches. No profession crowds the memory with a greater array of technicalities, not grouped together by logical relations so as to aid the memory, but disconnected so as the rather to confuse it. Many of these technicalities are required to be fresh in the mind for examination alone, then to be forgotten till called for by another. Even the Pharmacist of long experience, if required to pass a State Board, will find it necessary to recall these forgotten subtleties, as well as to review the more important principles.

To search out these intricacies again from large volumes, perhaps, too, to overlook many, is a painful task from which the sanction of his better judgment will turn away. In distaste to embrace this Quizzer with joy. Besides, a complete list of questions will afford the student a thorough review, will suggest general principles connected with each topic, will call out the technical points which the closest reader is likely to overlook on a first reading, and will serve, by well-directed questions, to focalize all these upon his memory.

The Quiz Method is the only way to get the principles of Pharmacy. You may read volume after volume and hear lecture after lecture, but if you don't get down to the technicalities by means of a quiz, you will find yourself poorly prepared for examination or practice. The Socratic Method of teaching, is old, but venerable for its age, for all the so-called *new* methods of teaching that have been successful are so mainly because of the retention of the Socratic Method.

Reverencing this fact, the authors have ably applied this time-honored method to the subject of Pharmacy. This Quizzer supplements without supplanting the text-book, and thus fills a long felt want.

J. GAI SMITH.

PHARMACY

*For a hasty review take the * questions.*

1. *Define Pharmacy.

Pharmacy is the science which treats of medicinal substances.

2. *Into what two chief classes may Pharmacy be divided?

Theoretical Pharmacy and Practical Pharmacy.

3. *What is Materia Medica?

That branch of medical science which treats of the substances used in the cure of disease.

4. *Define Magistral Pharmacy.

Magistral, or Extemporaneous, Pharmacy treats of the preparation and dispensing of medicines intended to meet the occasion.

5. *Define Galenical Pharmacy.

Galenical Pharmacy treats of the preparations which are made in advance and kept on hand ready for use.

6. *What is a Pharmacopœia?

A book containing a list of medicinal substances, with descriptions, tests and formulas, selected by some recognized authority.

7. *How many titles in the U. S. P.?

782.

8. What is Metrology?

The science which treats of weights and measures.

9. *What very important addition was made to the U. S. P. VIII?

The addition of doses.

10. What is Weight?

The measure of the gravitating force of a body.

11. What is Volume?

Volume is the space occupied by a certain amount of matter.

12. *What weights and measures are of special interest to the Pharmacist?

Apothecary's weight, avoirdupois weight, Apothecary's or wine measures, and the metric weights and measures.

13. *What is the unit of weight of the Troy and Avoirdupois weights?

The grain.

14. *How many grains in the Avoirdupois pound?

7,000.

15. *How many grains in the Avoirdupois ounce?

437.5.

16. *How many grains in the Troy pound?

5,760.

17. *How many grains in the Troy ounce?

480.

18. *How many grains in a fluid ounce of water?

454.6.

19. *What system of weights and measures has been adopted by the U. S. P.?

The Metric System.

20. *What is the unit of length of the Metric System?

The meter.

21. *What is the unit of capacity?

The Liter.

22. *What is the unit of weight?

The gram.

23. *What is the rule for converting the weights and measures in ordinary use into Metric weights and measures?

Multiply the quantities by the corresponding metric equivalent.

24. *How many inches in one meter?
39.37.
25. *How many cubic centimeters in one liter?
1,000.
26. *How many grains in one gram?
15,432.
27. *What is the rule for converting grams to grains?
Multiply the number of grams by 15.43.
28. *What is the rule for converting drachms to cubic centimeters?
Multiply the number of drachms by 3.75.
29. *What is the equivalent of one grain in the Metric System?
.064 Gm
30. *What is Specific Gravity?
Specific Gravity is the weight of one body compared with the weight of an equal bulk of another body selected as the standard, both bodies having the same temperature.
31. *What is the rule for taking specific gravity of a body heavier than water and insoluble in it?
Weigh the body in air, then weigh it in water. Divide the weight in air by the weight of water displaced. The quotient will be the specific gravity.
32. *How would you take the specific gravity of a liquid?
By the specific gravity bottle, or the hydrometer.
33. *What is Heat?
Heat is molecular motion.
34. *Why is illuminating gas best for generating heat for pharmaceutical operations?
It is cheap, furnishes a clean, smokeless flame. The supply is constant and under perfect control.

35. *How is heat measured?
By the thermometer.
36. *What is the official thermometer?
The Centigrade.
37. *Give freezing and boiling points of water on the Centigrade thermometer.
Freezing, 0°. Boiling, 100°.
38. *What is the freezing point of water on the Fahrenheit thermometer?
32°.
39. *What is the boiling point?
212°.
40. *What is the freezing point of mercury?
-40°.
41. *How could you measure temperature below that point?
By the alcohol thermometer.
42. *What is the rule for converting Fahrenheit degrees into those of Centigrade?
Subtract 32 and divide by 1.8.
43. *What is the rule for converting Centigrade degrees into those of Fahrenheit?
Multiply by 1.8 and add 32.
44. *How many processes in Pharmacy require the use of high heat?
Eight.
45. *Define Ignition.
Ignition is the process of strongly heating solids or semi-solids, the residue left being the object sought.

46. *What is carbonization?

It is the process of heating organic substances without exposure to air until the volatile products are driven off and the residue has the appearance of charcoal.

47. *What is incineration?

The process of heating organic substances with access of air until the carbon is consumed, the ashes being the object sought.

48. *What is calcination?

It is the process of separating volatile substances from fixed inorganic matter by the application of heat without fusion.

49. *What is fusion?

The process of liquifying solid bodies by the application of heat without the use of a solvent.

50. *What is Deflagration?

The process of heating one inorganic substance with another capable of yielding oxygen; decomposition ensues accompanied by a sudden combustion.

51. *What is Sublimation?

It is the process of separating a volatile solid from one which is not volatile by the application of heat.

52. *What is Torrefaction?

It is the process whereby organic substances have some of their constituents modified by the application of a degree of heat somewhat less than would be necessary to carbonize them.

53. *What is Vaporization?

It is the process of separating a volatile substance from a fixed or less volatile substance by the action of heat at varying temperatures.

54. *What is vaporization called when used to separate volatile liquids from less volatile?

Evaporation.

55. *What name is applied to it when the volatile liquid is the object sought?

Distillation.

56. *When it is used to separate a volatile solid from another body, what is it called?

Sublimation.

57. *Name two methods of increasing the rapidity of evaporation.

By increasing the temperature. By increasing the extent of surface exposed to the air.

58. *What is the boiling point of a liquid?

The temperature at which it boils.

59. *Define Distillation.

Distillation is the process of vaporizing a liquid by the application of heat and recondensing the vapor.

60. *What are the objects of sublimation?

To purify volatile solids. To collect volatile solids resulting from chemical reaction at high temperatures.

61. *How would you form Cake Sublimates?

By conveying the vapors into a chamber, the temperature of which is but little below the condensing point of the substance.

62. *How are Powder Sublimates made?

By conveying the vapors into a chamber where there is a marked difference between the temperature of the air and the condensing point of the substance.

63. *What is Comminution?

The process of reducing drugs to fine particles.

64. *What is Desiccation?

The process of depriving solid substances of moisture at a low temperature.

65. *What are the objects of desiccation?

To facilitate comminution.

To reduce the bulk.

To aid in preservation.

66. *What is Levigation?

The process of reducing substances to a state of minute division by triturating them after they have been made into paste with water or other liquid.

67. *What is Elutriation?

It is the process of obtaining a substance in fine powder by suspending an insoluble powder in water, allowing the heavier particles to fall to the bottom and decanting off the liquid containing the light particles.

68. *What is Solution?

Solution is the process whereby any substance is made to liquify or disappear when brought in contact with a solvent.

69. *What effect has simple solution on temperature?

It lowers it.

70. *What kind of solution would have the opposite effect?

Chemical.

71. *What is Filtration?

Filtration is the process of separating liquids from solids, with the object of obtaining the liquid in a transparent condition.

72. *Distinguish between Clarification and Decoloration.

Clarification is the process of separating from liquids, without the use of filters, solid substances which interfere with their transparency.

Decolorization is the process of depriving liquids or solids in solution of color by the use of animal charcoal.

73. *Name five ways of clarifying liquids.

By the application of heat.

By increasing the fluidity of the liquid.

By the use of albumen.

By the use of milk.

By fermentation.

74. Name two good methods of separating immiscible liquids.

By the use of the separating funnel.

By the use of the pipette.

75. *Define Precipitation?

Precipitation is the process of separating solid particles from a solution by heat, light or chemical reaction.

76. *What are the objects of precipitation?

To obtain solid substances in the form of fine powder, To effect the purification of solids. Used largely in chemical testing.

77. What is a Magma?

A thick precipitate left after the liquid is decanted.

78. How would you obtain a light precipitate?

Use cold, dilute solutions.

79. How would you obtain a heavy precipitate?

Use hot, dense solutions.

80. *How would you cause a precipitate to form in a liquid that contained albumen?

Heat it.

81. *State how you would detannate a solution by precipitation.

By the use of gelatine or ferric hydrate.

82. *What is Crystallization?

It is the process whereby substances are caused to assume certain determinate forms called crystals.

83. How would you proceed to procure crystals from a dilute solution of a crystallizable substance?

Evaporate until a pellicle forms on the surface. The substance will then crystallize.

84. What name has been given to the water that combines with a crystal?

Water of crystallization.

85. *How is water of crystallization defined?

As solid water in combined form.

86. *What is Efflorescence?

A salt is said to effloresce when it loses its water of crystallization and turns white when brought in contact with the air.

87. What is a Deliquescent substance?

A substance that absorbs moisture from the air and liquifies.

88. By what process are crystals deprived of their water of crystallization?

By exsiccation.

89. *What is Dialysis?

The process of separating crystallizable from non-crystallizable substances by placing a solution containing both on a porous diaphragm the under side of which is in contact with water.

90. Define Crystalloids.

Crystalloids are substances which always have the crystalline form.

91. Define Colloids.

Colloids are substances which never crystallize.

92. *How does extraction differ from solution?

Extraction differs from solution in the fact that the presence of insoluble matter is implied in the former, and the soluble constituents must be extracted by appropriate methods.

93. *Name five methods of extraction.

1. Maceration and expression. 2. Percolation. 3. Digestion. 4. Infusion. 5. Decoction.

94. *How does Digestion differ from Maceration?

Digestion requires the use of heat. Maceration does not require the use of heat.

95. How does Expression differ from Extraction?

Expression is the forcible extraction of liquids from solids.

96. *What is Percolation?

Percolation is the process of depriving a powder, contained in a percolator, of its soluble constituents by the descent of a solvent through it.

97. In the process of percolation how can we tell when the drug is exhausted?

Absence of color or taste is evidence of exhaustion.

98. *What two important classes of preparations are made largely by percolation?

1. Tinctures. 2. Fluid extracts.

AQUAE—Waters.

99. *What are official waters?

They are aqueous solutions of volatile substances.

100. How many forms of matter are used in the preparation of waters?

Three: Solid, liquid and gaseous.

101. By how many methods are they prepared?

Five.

102. *Name three methods.

1. Simple solution in cold water. 2. Gaseous solution. 3. Distillation.

103. Name two made by distillation.

1. Aqua Destillata. 2. Aqua Hamamelis.

104. *Name one that is made by gaseous solution, with strength.

1. Aqua Ammonia, 10 per cent.

105. What water is made by the solution of a volatile solid?

Aqua Camphorae.

- 106 *Give the U. S. P. definition of *Liquor Hydrogenii Dioxidi*.

A slightly acid aqueous solution of Hydrogen Dioxide, containing, when freshly prepared, about 3 per cent of the pure dioxide, corresponding to about ten volumes of available oxygen.

107. *How is *Aqua Chlori* prepared?

By dissolving chlorine gas in water. U. S. P. 1890.

SYRUP—Syrups.

108. What are Syrups?

Syrups are concentrated solutions of sugar in aqueous liquids.

109. By how many methods are they prepared?

Five.

110. *Name three methods.

1. By agitation without heat. 2. By the addition of the medicating substance to syrup. 3. By digestion.

111. What syrup is made from an aromatic tincture?

Aromatic Syrup of Rhubarb.

112. Name a syrup that contains three fluid extracts.

Compound Syrup Sarsaparilla.

113. *How is Syrup of Ferrous Iodide made? How should it be kept? Why?

Made by acting on iron wire with iodine and water. When the solution becomes green it is filtered into syrup and dilute hypophosphorous acid added.

Should be kept in small, well-stoppered and completely filled bottles exposed to the light. (*Remington*.)

To prevent the liberation of free iodine. Strength, 5 per cent.

114. *Why is Syrup of Wild Cherry made by the cold process?

To prevent the loss of Hydrocyanic Acid.

115. What are the ingredients in syrup of Hydriodic Acid, and strength?

Dilute Hydriodic Acid,
Water.
Syrup.

Contains 1.3 to 1.4 per cent., by weight, of absolute hydriodic acid.

116. What syrup is made by maceration?

Syrup of Wild Cherry.

117. Name a syrup made by digestion.

Syrup of Tolu.

118. *Name three syrups that contain acid.

1. Syrup of Citric Acid. 2. Syrup of Ipecac. 3. Syrup of Squill.

119. *What syrup contains Potassium Carbonate?

Syrup of Rhubarb Aromatic.

120. Name the Syrups that have Fluid Extracts as one of the Ingredients?

Syrup Ipecac, Syrup Rhubarb, Syrup Sarsaparilla Comp., Syrup Squills, Syrup Senega, Syrup Senna.

MELLITA—Honeys.

121. *What is the official name for Honey?

Mel.

122. How many are official?

Three.

123. *How do they differ from Syrups?

They differ merely in the use of honey as a base instead of syrup.

124. *What is the official name for Clarified Honey?

How is it prepared?

Mel Depuratum.

Heat the honey mixed with paper pulp. Strain and add five per cent of glycerin.

125. What are the ingredients in Mel Rosæ?

Clarified honey, fluid extract of rose.

MUCILAGINES—Mucilages.

126. *What are Mucilages?

They are thick, adhesive liquids made by dissolving gum in water.

127. How many are official?

Two.

128. How many Mucilages were dropped from the U. S. P. VIII.?

Two.

129. *What mucilages must be freshly prepared when wanted?

Mucilage of sassafras pith and mucilage of elm. (not official).

130. How is Mucilage of Acacia directed to be kept?

In well-stoppered and completely filled bottles in a cool place.

131. Why is Mucilage of Tragacanth directed to be strained forcibly through muslin?

Only a part of the tragacanth dissolves, the remainder only swells up and it must be forced through the strainer.

Note—Mucilage can be used as an antidote for all corrosive poisons.

132. Why was Lime water used in making Mucilage of Acacia?

To correct the acid condition of the old Gum.

133. What per cent. of Lime water was used in Mucilage of Acacia?

83 per cent.

EMULSA—Emulsions.

134. *Define Emulsions.

They are aqueous liquids in which oleaginous substances are suspended by the use of gum or other viscid matter.

135. How many are official?

Four.

136. *Into how many classes are Emulsions divided?

Name them.

Two.

Natural emulsions and prepared emulsions.

137. What are natural Emulsions?

Emulsions that exist naturally, as milk, yolk of egg.

138. What are Manufactured Emulsions?

Those which are made artificially.

139. *How are Gum Resin Emulsions made?

By triturating the gum resin with water.

140. *How are Seed Emulsions made?

By triturating the seeds with water.

141. *What Seed Emulsion is official?

Emulsion of Almond.

142. Name a Emulsion made from a Volatile Oil?

Emulsion of Turpentine.

143. How would you prepare an Emulsion of Pepo?

Triturate the seeds with water.

144. How would you make an emulsion of a volatile oil?

Mix the volatile oil with a fixed oil and proceed in the usual way.

145. *Give general formula for emulsions.

Oil four parts, water two parts, gum one part. Form the nucleus and dilute to the required amount.

146. What two Emulsions were dropped from U. S. P. VIII?

Emulsion of Chloroform.

Emulsion of Cod Liver Oil with Hypophosphites.

147. What percentage of oil in emulsion of Cod Liver Oil?

Fifty per cent.

148. Name official emulsion made by the bottle method.
Emulsion Turpentine.
149. Emulsion of Turpentine contains what per cent.
of Turpentine?
Fifteen per cent.

MISTURAE—Mixtures.

150. *What are Mixtures?
They are simply mechanical mixtures of insoluble medicinal substances in aqueous liquids.
151. How many are official?
Two.
152. How many contain an insoluble powder?
One.
153. What mixture is directed to be freshly prepared?
Chalk Mixture.
154. *What is the official name for Brown Mixture?
Mistura Glycyrrhiza Composita.
155. What form of Glycyrrhiza does it contain?
The pure extract of Glycyrrhiza.
156. What salt of iron did Griffith's Mixture contain?
Ferrous Carbonate.
157. What mixture contains a Tincture, a Spirit and an Extract?
Mistura Glycyrrhizæ Composita.

GLYCERITA—Glycerites.

158. Define Glycerites.
Glycerites are mixtures of medicinal substances with glycerin.

159. What is their chief advantage?

The ease with which they can be diluted with water or alcohol without precipitation is their chief advantage.

160. What glycerite was dropped from the U. S. P. VIII.?

Glycerite of the Phosphates Iron, Quinine and Strychnine.

161. How many are official?

Five.

162. *Name one that is used internally, with the dose.

Glycerite of Phenol. Dose, 5 m.

163. What alkaloid is precipitated by Glycerite of Hydrastis?

Berberine.

SPIRITUS—Spirits.**164. *What are Spirits?**

Alcoholic solutions of volatile substances.

165. How many are official, and by how many methods are they prepared?

Fifteen. Five.

166. Name two ways of making Spirits.

Maceration. Chemical reaction.

167. Name a spirit made by the solution of a volatile solid.

Spirit of Camphor.

168. *What two spirits are made by solution with maceration?

Spirit of Peppermint. Spirit of Spearmint.

169. *What general synonym has been given to the spirits made by maceration?

Essences.

170. What is Spiritus Glycerylis Nitratis ?
An alcoholic solution of Nitroglycerin containing 1 per cent. by weight, of the active ingredient.
171. *What spirit is made by chemical reaction?
Spirit of Nitrous Ether.
172. What Potassium salt will partly decompose Spirits of Nitroglycerine?
Potassium Hydroxide.
173. What two well known spirits were dropped from U. S. P. VII. ?
Spirits Frumenti, Spirits Vini Gallici.
174. Name two Compound Spirits?
Compound Spirit Orange, Compound Spirit Juniper.
175. *Why do you use ammonia water in Aromatic Spirits of Ammonia?
To neutralize the Ammonium Bicarbonate.

COLLODIA—Collodions.

176. *What are Collodions?
Liquid preparations having for their base a solution of pyroxylin in a mixture of alcohol and ether.
177. How are they applied? For what purpose?
They are applied with a brush. For the purpose of acting as a protective or to bring a medicating substance in contact with the skin.
178. What are the ingredients in Collodium Cantharidatum?
Cantharides, Glacial Acetic Acid, Flexible Collodion Acetone.
179. *What are the ingredients in Collodium Fexile?
Collodion.
Castor Oil.
Camphor.
180. What per cent. of Pyroxylin is used in Collodion?
Four per cent.

LINIMENTA—Liniments.**181. *What are Liniments?**

They are solutions or mixtures of various substances in oily or alcoholic liquids.

182. How are liniments intended to be applied?

They are to be applied externally by friction and rubbing of the skin.

183. How many are official?

Eight.

184. *What one is a soluble soap?

Liniment of Ammonia.

185. *What one is an insoluble soap?

Lime Liniment.

186. What are the ingredients in Linimentum Belladonnae?

Fluid Extract of Belladonna. Camphor.

187. What two contain a form of soap?

Linimentum Saponis, Linimentum Saponis Mollis.

188. What are the ingredients in Chloroform Liniment?

Soap Liniment.
Chloroform.

INFUSA—Infusions.**189. *What are Infusions?**

Liquid preparations made by treating vegetable substances with hot or cold water.

190. *By how many methods are they prepared? Name them.

Two. By maceration, by maceration and expression.

191. Which process is most frequently used?

Maceration.

192. *What is the chief objection to making infusions by diluting fluid extracts?

When an alcoholic fluid extract is diluted to the extent necessary to make an infusion it causes serious precipitation.

193. *In making infusions which would you use and why, a coarse or fine powder?

Course powder; a fine powder would be hard to separate from the liquid.

194. What infusions are made by maceration?

Infusion of Digitalis, Compound Infusion of Senna.

195. *What are the ingredients in Compound Infusion of Senna?

Senna.

Manna.

Magnesium Sulphate.

Fennel, bruised.

Boiling Water.

Cold water.

196. *In the preparation of Infusion of Digitalis, why not add the cinnamon water while the solution is hot?

The heat would cause it to volatilize and escape.

197. How should the strength of Infusions of potent drugs be determined?

By the advice of a physician familiar with the case.

TINCTURAE—Tinctures.

198. *What are Tinctures?

Alcoholic solutions of non-volatile substances.

199. What exception to the rule?

Tincture of Iodine.

200. *How many tinctures are official?

Sixty-four.

201. *In what different ways are they prepared?

By maceration, by percolation, by solution or dilution.

202. *What is used as a menstruum?

Alcohol, Diluted Alcohol of various strengths, Aromatic Spirits of Ammonia, mixtures of Alcohol, Water and Glycerin.

203. *What advantage have they over Infusions?

They are permanent preparations and can be kept on hand ready for use.

204. *What is their chief advantage over fluid extracts?

They can be added to aqueous liquids without serious precipitation.

205. Why is glycerin used in some tinctures?

To hold the tannin in solution.

206. Are tinctures of uniform strength?

No.

207. *What substances are directed to be macerated when used in making tinctures?

Resins, balsams, gums, etc.

208. *Name a tincture made by simple solution and one made by dilution.

Tincture of Iodine, by solution.

Tincture of Ferric Chloride, by dilution.

209. What Tincture contains Benzine?

Deodorized Tincture Opium.

210. Name two tinctures that contain purified Aloes.

Tincture of Aloes. Compound Tincture of Benzoin.

211. What Tincture is colored by using a powdered insect?

Compound Tincture Cardamon.

212. *What tinctures are made with Aromatic Spirits of Ammonia?

Ammoniated Tincture of Guaiac. Ammoniated Tincture of Valerian.

213. *In the preparation of what tincture is Benzin used?

Tincture of Lactucarium.

214. Potent Tincture of 10 per cent. strength.

Aconite.

Belladonna Leaves.

Benzoin Compound.

Cannabis.

Cantharides.

Capsicum.

Colchicum Seed.

Digitalis.

Gelsemium.

Hyoscyamus.

Lobelia.

Nux Vomica.

Opium.

Opium, Deodorized.

Physostigma.

Sanguinaria.

Squill.

Stramonium.

Strophanthus.

Veratrum.

Tinctures of 20 per cent strength.

Arnica.

Asafetida.

Bitter Orange Peel.

Benzoin.

Calumba.

Cinchona.

Guaiaci.

Ammoniated Tincture Guaiaci.

Hydrastis.

Myrrh.

Pyrethrum.

Quassia.

Rhubarb.

Aromatic Tincture Rhubarb.

Tolu.

Valerian.
Ammoniated Tincture Valerian.
Ginger.

SERUMS.

215. What Serums are official?
Serum An tidiphthericum.
Serum An tidiphthericum Purificatum.
Serum An tidiphthericum Siccum.
Serum Autitetanicum.
Serum Autitetanicum Purificatum.
Serum Autitetanicum Siccum.
216. What advantages have the dried serums?
If properly kept they do not lose their protency as the liquid serums do.
217. What animal is used to prepare Serums?
The horse or other large domestic animal.
218. What is the average dose of all the above mentioned serums?
Hypodermic 10,000 units. Protective 1,000 units.
219. What general restriction is placed on the sale of Vaccine Virus?
Only such Vaccine Virus may be sold as has been prepared in establishments licensed by the Secretary of the Treasury of the United States.
220. Name at least four Elementary Substances used in Pharmacy?
Iodine, Zinc, Mercury, Phosphorus.
221. Name at least three largely used preparations obtained from the hog?
Lard, Pepsin and Pancreatin.
222. How is Oxygen kept for use?
Compressed in metal cylinders.
223. What is Cresol?
A mixture of Isomeric cresols obtained from coal tar.

FLUIDEXTRACTA—Fluid Extracts.

224. *What are fluid extracts?

Fluid Extracts are alcoholic liquid, preparations, one cubic centimeter of which represents the medicinal virtues of one gram of the drug.

225. How many Fluid extracts were added to the U. S. P. IX.?

Two.

226. How many Fluid extracts are directed to be assayed?

Eleven.

227. In what other way could they be defined?

As concentrated tinctures.

228. *How many are official?

Forty-nine.

229. *What are their chief advantages?

Permanency. Concentration. The relation of gram to cubic centimeter.

230. *How are they prepared?

By percolation with partial evaporation and maceration. Processes are described as Type Processes. A, B, C, & D.

231. *How is permanence secured?

By the use of Alcoholic menstrua.

232. How many fluid extracts contain glycerin, and what is it used for?

Nine contain glycerine. Used to prevent precipitation.

233. How many Fluid Extracts are assayed Biologically?

Three.

234. Of what use is the acid in Fluid Extract of Ergot?

Used to fix the alkaloids.

235. What are the ingredients in Fluid Extract of Sarsaparilla Compound? .
Sarsaparilla, Glycyrrhizae, Sassafras, Mezereum.
236. What Officia Preparation is made from Fluid Extract of Rose?
Mel Rosae.
237. *Why is Ammonia Water used in Fluid Extract of Senega?
Used to dissolve the Pectin.
238. Why is Ammonia water used in Fluid Extract of Glycyrrhiza?
To dissolve the glycyrrhizin.
239. What Compound Fluid Extract is official?
What fluid extract is made from Aromatic powder?
Compound Fluid Extracts of Sarsaparilla.
Aromatic Fluid Extract.
240. What fluid extract is made with boiling water and Alcohol added to preserve?
Fluid Extract of Triticum.

EXTRACTA — Extracts.

241. *What are Extracts?
Extracts are solid or semi-solid preparations made by evaporating solutions of vegetable substances.
242. How many are official?
Twenty-seven.
243. *How are they prepared?
By maceration with percolation and evaporation.
244. *What menstrua are used?
Water, alcohol, diluted alcohol with various strengths, acetic, acid, ether, and dilute solutions of ammonia. Dilute Sulphuric Acid, Chloroform, Benzine, Hydrochloric Acid.

245. *What Extract contains Dilute Sulphuric Acid? Why is the acid used?
Extract of Nux Vomica.
Used to dissolve the alkaloids.
246. *What per cent. of strychnine must Extract of Nux Vomica contain?
15.2 to 16.8 per cent.
247. *How much Morphine must Extract of Opium contain?
20 per cent.
248. *What are the U. S. P. requirements of Extract of Glycyrrhiza?
It must contain 90 per cent of soluble matter. .
249. What two Extracts contain Sugar of Milk? For what purpose?
Extract of Nux Vomica. Extract of Opium.
Used as a diluent so that the finished extracts shall contain the proper percentage of alkaloids.
250. *In the preparation of what Extracts is Ammonia Water used, and why?
Pure extract of Glycyrrhiza.
To dissolve the glycyrrhizin.
Extract Nux Vomica To
Precipitate alkaloids.
251. How many extracts have been added?
Seven.
252. What is Magnesium Oxide used in certain Extracts for?
As a diluent.
253. How many extracts are directed to be assayed?
Eleven.
254. What extract is largely used as a pill excipient?
Extract of Gentian.

255. What is the official name and the ingredients in the only compound extract?

Extractum Colocyntidis Compositum.

Extract of Colocynt.

Aloes.

• Cardamom.

Resin of Scammony.

Soap.

256. *What may be added to extracts to prevent them from becoming hard?

Glycerin.

257. How may extracts be made without the use of heat?

By freezing the juices, then expressing them, and drying the concentrated juice in the sun.

258. *What is the chief objection to extracts?

Their variable strength.

OLEORESINAE—Oleoresins.

259. *What are Oleoresins? Are they of uniform strength?

They are liquid preparations consisting principally of natural oils and resins extracted from vegetable substances by percolation with Ether and Alcohol.

They are not; They bear no uniform relation to the drug. The menstruum used extracts principles which are often insoluble in alcohol.

260. What solvents are used in Oleoresins?

Alcohol and Ether.

261. How do they differ from all other liquid preparations?

They are without exception the most concentrated liquid preparations that are produced.

262. *How do Oleoresin of Aspidium and Oleoresin of Cubeb differ when kept on hand?

A precipitate forms in Oleoresin of Aspidium which must be shaken up and dispensed with the liquid part. The precipitate in Oleoresin of cubeb is inert and should be filtered out.

ACETA—Vinegars.

263. *What are Vinegars?

Vinegars are the solutions of the active principles of drugs in diluted acetic acid.

264. *How many are official, and what is the strength of each?

One. It represents the strength of 10 per cent of the drug.

265. What Vinegar was dropped from the U. S. P. VIII?
Vinegar Opium.

266. *What is their chief advantage over tinctures?

They can be added to aqueous liquids without serious precipitation.

RESINAE—Resins.

267. What are Resins? How many are official?

Resins are solid preparations consisting principally of the resinous principles from vegetable bodies. Four are official.

268. *How do they differ from extracts?

They contain only those principles which are soluble in alcohol and insoluble in water. Extracts contain the principles that are soluble in both alcohol and water.

269. How are they prepared?

One is obtained as a by-product from the distillation of volatile oils. Three are made by adding an alcoholic solution of a resinous drug to water, and collecting and drying the precipitate.

270. *Why is Hydrochloric Acid used in Resin of Podophylin?

Used to facilitate precipitation.

GUMS.

271. *What are Gums?

Gums are vegetable substances insoluble in alcohol, but with water they form a thick glutinous liquid, mucilage.

272. *What three Proximate principles are found in gums?

- (a) Arabin, a soluble gum found in acacia.
- (b) Bassorin, an insoluble gum found in tragacanth.
- (c) Cerasin, an insoluble gum found in cherry gum.

273. How do gums differ from starch or cellulin?

They differ from starch or cellulin by being soluble in water or swelling up when in contact with it.

274. How do gums differ from sugar?

Gums differ from sugars by being incapable of vinous fermentation with yeast.

SUGARS.

275. *What are sugars?

Sugars are organic bodies having a sweet taste, generally of vegetable origin, crystallizable, soluble in water and only slightly soluble in alcohol.

276. *Into what two classes are sugars divided?

Fermentable and non-fermentable.

277. Which is the more important class?

The fermentable sugars are the most important.

278. *Into what two sub-classes are the fermentable sugars divided?

- (a) Glucoses, or sugars directly subject to vinous fermentation.
- (b) Saccharoses, or sugars indirectly subject to vinous fermentation.

SOAPS.

279. *What are soaps chemically?
Chemically, soaps are oleates.
280. *Into how many classes are soaps divided? Name them.
Two. Soluble and insoluble.
281. Name two insoluble soaps used in Pharmacy.
Lead Plaster and Lime Liniment.
282. What are the official preparations of soap?
Sapo and Sapo Mollis.
283. What official preparation made from soft soap?
Liniment of Soft Soap.
284. *How are Hard Soaps made?
Soaps are made hard by using a fat that contains much stearin and soda for the alkali.
285. *How are Soft Soaps made?
Soft soaps are made by using a fat that contains a large proportion of olein and potassa for the alkali.

VOLATILE OILS.

286. *What are Volatile Oils?
Volatile oils are volatile odorous principles which produce a greasy stain that disappears on the application of heat.
287. *Into what classes are they divided?
(a) Terpenes.
(b) Oxygenated Oils.
(c) Sulphurated Oils.
(d) Nitrogenated Oils.
288. *What are the proximate constituents of Volatile Oils?
Volatile oils consist of two principles, Stearopten the solid portion, and Eleopten the liquid portion.

289. *How can the stearoptens be separated from the liquid portion?

When stearopten and eleopten congeal at different temperatures they may be separated by compressing the frozen oil between folds of bibulous paper; the liquid portion is absorbed by the paper while the solid part remains between the folds.

290. What are the best solvents for volatile oils, and to what extent are they soluble in water?

Alcohol, Ether and Chloroform are the best solvents. They are only soluble in water to the extent of one or two parts to a thousand.

291. *What effect has exposure to light and air upon volatile oils?

It injures the quality and destroys the fragrance of volatile oils. Ozone is developed, and they thicken and become resinified.

292. *What are the chief adulterants of volatile oils and the test for each?

- (a) Fixed Oils. Detected by adding the oil to the filter paper and applying heat; if the oil is pure the stain will disappear, but if it contains a fixed oil the stain will be permanent.
- (b) Alcohol. Detected by adding iodine and potassium bicarbonate to the oil; if alcohol is present iodoform will be formed.
- (c) Chloroform. When distilled at 60°C. the distillate should not have any of the properties of chloroform.
- (d) Synthetic Oils. Detected by the odor.

293. What is the chief method of obtaining volatile oils?
By distillation with water.

294. What is Eufleurage?

Eufleurage is a process used for extracting the odors of very delicate flowers, by sprinkling the flowers on a thin layer of fat, allowing them to stand until the fat has absorbed the odor. The volatile products may then be obtained by macerating the fat in alcohol.

FIXED OILS AND FATS.

296. *What are Fixed Oils and Fats?

Fixed oils and fats are only substances obtained from both the animal and vegetable kingdom. They are greasy to the touch, produce a greasy stain on paper which does not disappear on the application of heat.

297. *What are fixed oils and fats chemically?

Chemically, they are compound ethers of higher members of the fatty acids.

298. *How may rancid oils be purified?

They can, usually, be purified by shaking them with hot water, then with a cold solution of sodium carbonate, then washing them with cold water.

299. *What are the proximate principles of Fixed Oils?

Olein, the liquid portion.
Palmitin and Stearin are both solid.

300. How is the Olein separated from the solid parts?

By freezing the oil and then subjecting it to hydraulic pressure; the liquid part is forced out while the solid portion remains in the press.

301. What is their chief use in Pharmacy?

To form soaps and as a base for ointments.

EMPLASTRA—Plasters.

302. *What are Plasters?

Plasters are substances intended for external application, of such a consistence that they adhere to the skin and require the aid of heat in spreading them.

303. What is the basis of most plasters?

Either Lead Plaster or Adhesive Plaster.

304. *When spread plasters become hard on the surface, how may they be made to adhere to the skin?

By brushing the surface with tincture of camphor.

305. Would you use high heat in the preparation of plasters, and why?

No. A high heat may cause decomposition and a loss of any volatile constituents that the substance may contain.

306. What plasters were added to the U. S. P. VIII.?

Emplastrum Elasticum.
Emplastrum Cantharidis.
Emplastrum Resina.

307. Give the Latin title and ingredients in Adhesive Plaster.

Euplastrum Resina.

Rosin.

Lead Plaster.

Yellow Wax.

308. Give full Latin title for Diachylon Plaster.

Emplastrum Plumbi.

309. *What useful, by-product is produced in the manufacture of Lead Plaster?

Glycerin.

UNGUENTA—Ointments.

310. *What are Ointments?

Ointments are fatty preparations of a softer consistence than cerates, intended to be used externally.

311. * By how many methods are ointments prepared? How many are official?

Three—by fusion; by incorporation; by chemical reaction. There are twenty official.

312. What are the ingredients in Rosin Cerate?

Resin.

Yellow Wax.

Lard.

313. Name two ointments made by fusion.

Unguentum Aquæ Rosæ.

Unguentum Diachylon.

314. *What three maxims should be observed in dispensing ointments?

Never dispense ointments that are rancid. They should always be smooth and free from irritating particles. Ointments containing free acid or iodine should not be rubbed with an iron or steel spatula.

315. *Name two ointments that should not be made with an iron or steel spatula.

Unguentum Hydrargyri Nitratiss.

Unguentum Iodi.

316. Why is Potassium Iodide used in Unguentum Iodi?

To dissolve the iodine.

317. What Ointments are made from Pilular Extracts?

Belladonna Ointment, Stramonium Ointment.

318. What Ointment contains Lanoline?

Unguentum Hydrargyri Oxidi Fleui.

319. *What chemical change takes place in the preparation of Citrine Ointment?

The olein of the oil is converted into eleadin.

320. Give formula for Blue Ointment.

Mercurial Ointment.

Petrolatum.

321. What per cent of mercury in Blue Ointment?

29 to 31 per cent.

CERATA—Cerates.

322. *What are Cerates?

Cerates are unctuous substances of such a consistence that they may be easily spread with a spatula without the aid of heat.

323. What Cerates were dropped from the U. S. P. VIII.?

Ceratum Camphora.

Ceratum Plumbi Subacetatis.

Ceratum Resina Compositum.

324. *By how many methods are they prepared? How many are official?

One fusion. Three cerates are official.

325. *How do they differ from ointments?

They are of a harder consistence than ointments. They all contain wax to raise the melting point.

326. What was the official name of Goulard's Cerate?
By what process was it made?
Ceratum Plumbi Subacetatis.
It was the only official cerate made by incorporation.
327. What are the ingredients in Ceratum Cantharidis?
Cantharides.
Yellow Wax.
Resin.
Glacial Acetic Acid.
Oil Turpentine.
Benzoinated Lard.
-

TRITURATIONS.

328. Give general formula for Triturations?
The substance 10 Gm.
Sugar of Milk 90 Gm.
329. What Trituration is official?
Trituration of Elaterin.
-

PILULAE—Pills.

330. *What are Pills?
Pills are small solid bodies, generally of a globular or lenticular shape, which are intended to be swallowed to produce medication.
331. *Of what does a pill mass consist?
The active ingredients and the excipient.
332. *What are the essential requirements of a pill mass?
It must be adhesive, firm and plastic.
333. When would you use Confection of Rose for an excipient?
When the amount of the active ingredient is small and dilution is necessary.

334. *What makes a good excipient for volatile oils?
Magnesia or Soap.
335. *What excipient would you use for oxidizable substances, such as Potassium Permanganate and Silver Nitrate?
Vaseline or Cacacao Butter.
336. *What official pills are directed to be coated?
Pills of Phosphorus and Pills of Ferrous Iodide.
337. By what different names are pills of Ferrous Carbonate known?
Pilulæ Ferri Carbonatis.
Ferruginous Pills.
Blaud's Pills.
338. *Give the ingredients of Compound Cathartic Pills.
Compound Extract of Colocynth.
Mild Mercurous Chloride.
Resin Jalap.
Gamboge.
Dilute Alcohol.
339. What is the official name of Blauid's Pills?
Pilular Ferri Carbonatis.
340. *What general rule must be observed in the choice of pill excipients?
Never use an excipient alone which is a perfect solvent for the solid substance.
341. What is the strength of Phosphorus pills? (Not official).
Each pill contains .01 gr. of Phosphorus.
342. How many pills are official?
Seven.
343. Pill masses are official in the U. S. P. under what title? Name all the official masses.

Massa. The official masses—

Massa Ferri Carbonatis.

Massa Hydrargyri.

PULVERES—Powders.

344. What are powders?

They are dry medicinal substances reduced to fine particles to facilitate absorption.

345. How many powders are official?

Seven.

346. *Give the official name for Seidlitz Powder.

Pulvis Effervescens Compositus.

347. What are the ingredients in Aromatic Powder?

Saigon Cinnamon.

Ginger.

Cardamon.

Nutmeg.

348. *Give the official name and ingredients of Pulvis Purgans.

Pulvis Jalapae Compositus.

Jalap

Potassium Bitartrate.

349. Why was Tully's Powder dropped?

On account of the morphine.

350. *Give the official name for Pulvis Purgans.

Pulvis Jalapae Compositus.

351. What are the ingredients in Pulvis Rhei Compositus?

Rhubarb.

Magnesia.

Ginger.

352. What are the ingredients in Pulvis Glycyrrhizae Compositus?

Senna.
Glycyrrhiza.
Washed Sulphur.
Oil of Fennel.
Sugar.

353. Why was Compound Acetanilide Powder dropped?
On account of the danger of using Acetanilid.

INORGANIC ACIDS.

354. *What are the chief properties of the Inorganic Acids?

They have a sour taste, all caustic and corrosive, combine with metals to form salts, turn blue litmus paper red.

355. To what three classes of acids do they belong?

Hydracids, Oxyacids, Anhydrides.

356. Distinguish between an Oxyacid, a Hydracid and an Anhydride.

An oxyacid contains oxygen; as HNO_3 .

A hydracid contains no oxygen, as HCl .

A Anhydride forms a true acid when added to water.

357. What is the strength of the official acids?

They vary from 2 to 99 per cent.

358. *What is the strength of the dilute acids?

All dilute acids are 10 per cent, except HCy , 2 per cent, Dilute Acetic Acid, 6 per cent, Dilute Nitrohydrochloric Acid, $32\frac{1}{2}$ per cent.

359. What acid is 99 per cent pure?

Glacial Acetic Acid.

260. How do acids compare in weight with water?

They are all heavier than water, except Aromatic Sulphuric Acid.

361. *Into what two classes are commercial acids divided?

Chemically Pure, "C. P."

Medicinally Pure, "M. P."

362. *What is their chief use in Pharmacy?
As a solvent for metals to form salts.
363. *What are their medicinal properties?
Tonic and refrigerant.
364. What is the U. S. P. definition of Acidum Nitricum?
A liquid composed of 68 per cent by weight of absolute Nitric Acid and 32 per cent of water.
365. How is Aqua Regia prepared?
By mixing Nitric Acid and Hydrochloric Acid.
366. *What are the ingredients in Aromatic Sulphuric Acid?
Sulphuric Acid.
Tincture of Ginger.
Oil of Cinnamon.
Alcohol.
367. *How much acid by weight and volume does Aromatic Sulphuric Acid contain?
10 per cent by volume, 20 per cent by weight.
368. What is the principal use of Phosphoric Acid in Pharmacy?
To make the dilute Phosphoric Acid.

THE HALOGENS.

369. *Describe Chlorine.
Chlorine is a greenish-yellow gaseous body having a suffocating odor.
370. *What is its most useful property?
Its most useful and characteristic property is that of bleaching organic coloring matter. It is also one of the most reliable disinfectants.
371. In what combination is it used as a disinfectant?
In combination with lime as bleaching powder.

372. What is the official name of Bleaching Powder?
Calx Chlorata.
373. Describe Bromine.
Bromine is a dark red, non-metallic liquid.
374. How is it prepared?
By decomposing crude magnesium bromide with chlorine.
375. *Name two sources of Iodine.
The ashes of seaweeds and the mother liquids obtained from the crystallization of sodium nitrate.
376. *Is Iodine an elementary substance or a compound?
It is a non-metallic element.

SULPHUR.

377. How is Sulphur found?
Uncombined, and in form of sulphates and sulphides.
378. *In what three forms is free sulphur official?
Sulphur sublimatum.
Sulphur Lotum.
Sulphur Praecipitatum.
379. *Why is Ammonia Water used in preparing Washed Sulphur?
To neutralize the Sulphuric Acid which is frequently found in Sublimed Sulphur.

PHOSPHORUS.

380. *What is Phosphorus?
A non-metallic element prepared by heating acid calcium phosphate with charcoal.
381. What are the Phosphorus preparations used for?
As a tonic in defective nerve nutrition.

382. What caution should be observed in dispensing Linseed Oil?

Linseed Oil which has been boiled must not be used or dispensed.

383. What solid product is obtained from petroleum?
Paraffin.

THE ALKALI METALS.

384. *Name the Alkali Metals.

Potassium, Sodium, Lithium and Ammonium.

385. Describe them briefly.

They have strongly marked physical and chemical properties. They combine with acids to form salts, restore the color of red-dened litmus paper, change vegetable blue to green, and yellow to brown. They are very soft, can be easily cut with a knife. Their specific gravity is so low that they will float on water, but when brought in contact with it they inflame spontaneously. Hence they must be kept in a liquid that is free from oxygen.

386. Are their salts soluble or insoluble?

Soluble.

387. *Give two sources of Potassium.

The ashes from beet sugar residue, from impure potassium chloride found in the mines in Germany.

388. How many official preparations of Potassium?

Fifteen.

389. *What is the source of Potassium Bitartrate?

Argols, a substance deposited in wine casks during the fermentation of the grape juice.

390. How would you dispense powders of Potassium Acetate?

Wrap the powder in waxed paper and then in tin-foil.

391. *Why are sodium salts more frequently used than potassium salts?

It is largely a matter of local custom, but the sodium salts are cheaper and more soluble.

392. How is Sodium Arsenate made?

By heating together arsenous acid, sodium nitrate and sodium carbonate.

393. How many official salts of Lithium?

Three.

394. *What are the salts of Lithium used for?

Used for gout and rheumatism.

AMMONIA.

395. *What is the chief source of Ammonia?

The source of nearly all the Ammonia met with in commerce is the Ammonia gas obtained in distilling coal in the manufacture of illuminating gas.

396. *Why are Ammonium salts classed with those of the alkali metals?

Because they resemble them so closely in their chemical and physical properties.

397. What effect has heat on salts of Ammonium?

The salts of ammonium are completely volatilized at high temperatures.

398. *What liquid preparations of Ammonia are official?

Aqua ammoniae, Aqua Amomniæ Fortior, and Aromatic Spirits of Ammonia.

399. *State the strength of two of them.

Ammonia Water, 10 per cent; Stronger Ammonia Water, 28 per cent.

MAGNESIUM.

400. In what forms is Magnesium found in nature?

As Chloride, Sulphate and Carbonate.

401. Light magnesia is made by calcining the light mag-

nesium carbonate. How would you prepare the heavy magnesium?

By calcining the heavy magnesium carbonate.

402. How could you reduce the bulk of light magnesia?

By trituring it.

403. *What are the ingredients in Liquor Magnesia Citratis?

Magnesium Carbonate.

Citric Acid.

Syrup.

Potassium Bicarbonate.

Water.

Purified Talc.

Oil Lemon.

Water.

CALCIUM.

404. How is Liquor Calcis made?

By washing lime with distilled water to remove other soluble salts; then adding more water and allowing it to stand on the lime so as to insure a saturated solution.

405. *How should it be kept? Why?

Should be kept in tightly stoppered bottles.

To prevent the absorption of carbon dioxide, which would cause the dissolved lime to precipitate as insoluble calcium carbonate.

ZINC.

406. What was the U. S. P. definition for Zinc?

Metallic zinc, in the form of thin sheets, or irregular, granulated pieces.

407. What is the color of the precipitate when a solution of zinc salt is treated with ammonium sulphide?

White. Zinc Sulphide.

408. What are the ingredients in Liquor Zinci Chlorridi?

Zinc.

Hydrochloric Acid.

Nitric acid.

Precipitated Zinc Carbonate.

Distilled Water.

IRON.

409. *What is the U. S. P. definition of Ferrum?

Metallic iron in the form of fine, bright wire.

410. *How is tincture of Ferric Chloride made?

By diluting solution of Ferric Chloride with alcohol, and allowing it to stand for three months.

411. *Why is it allowed to stand for three months?

To permit the formation of compound ethers, which are produced by the action of the free acid on the alcohol.

412. How much iron in Ferri Phosphas?

12 per cent.

413. What ingredients are used in the preparation of Ferri Carbouas Saccharatus?

Ferrous Sulphate, Sodium Bicarbonate, Sugar of Milk, Sugar, Diluted Sulphuric Acid, Distilled Water.

414. *Why is sugar used in the iron preparations?

To prevent oxidation.

415. *What is the difference between Liquor Ferri Subsulphatis and Liquor Ferri Tersulphatis?

The liquor Ferri Subsulphatis contains more iron and less sulphuric acid than the Liquor Ferri Tersulphatis.

416. *Give the distinguishing test between the above solutions.

The solution of Sulphate of Iron gives a white precipitate with sulphuric acid. The solution of the Tersulphate gives a clear solution with the same reagent.

417. *What would you dispense if a solution of Persulphate of Iron was prescribed?

The solution of Subsulphate of Iron.

418. What form of iron is used in making the Scale Salts of Iron?

Ferric Hydrate.

SILVER.

419. *In what form is Silver usually found?

As Sulphide; usually associated with lead.

420. *Why was Silver Cyanide once made official?

For the extemporaneous preparation of Hydrocyanic Acid.

421. What is the most important salt of Silver?

Silver Nitrate.

MERCURY.

422. What U. S. P. preparation contains Calomel?

Compound Cathartic Pills.

423. How many official preparations contain metallic Mercury?

Four.

424. *How many series of compounds does Mercury form?

Two. Mercurous and Mercuric.

425. State which, Corrosive Sublimate, or Calomel, contains the more mercury.

Calomel.

426. *Which is the more poisonous, the Red Iodide or the Yellow Iodide of Mercury?

The Red Iodide.

427. *What is the chemical test between the Yellow and Red Oxide of Mercury?

When the yellow Oxide is digested with a solution of oxalic acid, it turns white. The red oxide is not changed by the process.

428. What restriction was imposed on the use of Synthetic drugs?

No compound or mixtures shall be introduced if the composition or mode of manufacture shall be kept secret or controlled by unlimited patents. While trade names are not used by the U.S.P. IX. for Synthetic remedies we deem it proper to use them in this work as our purpose is not to give a technical education but to aid the already over-taxed mind of the Pharmaceutical student rather than burden it with a lot of unlearnable names.

429. What two drugs are assayed by Electrolysis?

Mercury and Zinc.

430. What is the amount of the active ingredient in each of the following by per cent?

Acidum Aceticum Dilutum.....6	Oleatum Hydrargyri25
Acidum Aceticum36	Opii Pulvis-----10-10.5
Acidum Hydrocyanicum Dilutum..3	Opium-----9.5
Acidum Hydrochloricum 31-33	Spiritus Camphoræ10
Acidum Lacticum -----85-90	Spiritus Chloroformi6
Acidum Sulphuricum --- 93-95	Spiritus Glonoini1
Aqua Ammonia10	Syrupus Acidi Citrici.....1
Aqua Ammonia Fortior 27-29	Syrupus Ferri Iodidi.....5
Aqua Hydrogenii Dioxide.....3	Syrupus Scilla Compositus, Tartar
Chloroform.....99 to 99.4	Emetic0.3
Extractum Nucis Vomicae-----	Tinctura Aconiti10
-----15.2-16.8	Tinctura Cannabis Indica.....10
Extractum Nucis Vomicae	Tinctura Capsici-----10
Fluidum-----2.37-2.63	Tinctura Cinchonæ30
Extractum Opii20	Tinctura Colchici Seminis.....10
Infusum Digitalis1.5	Tinctura Digitalis10
Liquor Acidi Arsenosi.....1	Tinctura Iodi7
Liquor Calcis0.12	Tinctura Lactucarii50
Liquor Ferri Subsulphatis	Tinctura Nucis Vomicae (Alkaloids)
-----13-14	-----237-263
Liquor Ferri Tersulphatis	Tinctura Opii (Opium..10) Mor-
-----10-11	phine -----95-1.05
Liquor Plumbi Subacetatis...18	Tinctura Straphanthi10
Liquor Potassi Arsenitis	Tinctura Veratri Veridis.....10
-----97-1.02	
Liquor Sodii Arsenatis .97-1.02	
Liquor Zinci Chloridi ---49-51	

BOTANY

1. ***What is Botany?**
Botany is the science which treats of the structure of plants, the functions of their parts, their classification, and the terms which are employed in their description.
2. ***What is a Root?**
The descending axis of a plant.
3. ***What is a Rhizome?**
The stem remaining wholly or partly underground and growing mostly in a horizontal or oblique direction.
4. ***What is a tuber?**
A tuber is the enlarged portion of an underground stem, possessing latent buds called eyes.
5. ***What is a Bulb?**
A subterranean leaf bud with fleshy leaves called scales.
6. **What is a Corm?**
The dilated, fleshy, tuberous base of an annual stem.
7. ***What is a Flower?**
That part of a plant which contains the organs of fructification.
8. ***What is a Male Flower?**
A flower with stamens and no pistils. (Sterile).
9. ***What is a Female Flower?**
A flower with pistils and no stamens.
10. ***What are Stamens?**
The male organs of flowers.
11. ***What are Pistils?**
The female organs of flowers.
12. ***What is the Ovary of a Flower?**
The part of the pistil which contains the ovules.

13. What is Pollen?
The yellow dust in the anther.
14. *What is the Stigma?
The part of the plant which receives the pollen.
15. *What is the Inflorescence of a plant?
The part of the plant which bears the flowers and fruit.
16. *What is an ovule?
The body which, after fertilization, becomes the seed.
17. *What is a seed?
The fully developed and ripened ovule.
18. What is a Fruit?
The ripened ovary of a flower.
19. What are Aggregated Fruits?
Fruits that consist of a mass of simple fruits, all the product of a simple flower.
20. What are Collective Fruits?
Fruits that are the product of numerous distinct flowers growing in compact clusters.
21. What is a Drupaceous Fruit?
A stone fruit, as the peach and cherry
22. Define Pericarp.
The pericarp is the part of the fruit that contains the seed.
23. Define Sarcocarp.
The fleshy part of a drupaceous fruit.
24. *What is a Berry?
A succulent or pulpy fruit containing naked seeds.
25. *What are Leaves?
Leaves are the organs of respiration of a plant.
26. What is a Leaflet?
A separate blade of a compound leaf.

27. What is a Compound Leaf?
A leaf composed of leaflets.
28. What is a Netted Leaf?
A leaf in which the veins form a network.
29. What is a Deciduous Leaf?
A leaf lasting for one season only.
30. What is a Serrate Leaf?
A leaf with notched edges.
31. What are Stomata?
Breathing pores. They are usually on the under side of the leaf.
32. *What is Chlorophyl?
The green coloring matter of a leaf.
33. *What do you understand by the term Spore?
The reproductive body in non-flowering plants.
34. What is meant by the Habitat of a plant?
The character of the place in which the plant grows wild.
35. *What is a Parasitic Plant?
A plant that grows upon and derives its nourishment from another plant.
36. *What is a Biennial Plant?
A plant which requires two years to grow and mature its fruit, growing one year and flowering and fruiting the next.
37. *Define Thallus.
A vegetable body undifferentiated into root stem or leaves.
38. *What do you understand by the term Fungi?
A general term for those flowerless plants which contain no chlorophyl and are either parasitic or saprophytic.
39. Define Sclerotium.
A consolidated and hardened mass of hyphae in a resting condition, as in ergot.

40. What is an Herb?

A plant in which the stem does not become woody, but dies to the ground annually after flowering.

41. What is a Shrub?

A perennial woody plant with many stems branching from near the ground, generally smaller than a tree.

MISCELLANEOUS

Questions in Materia Medica.

1. *What is Camphor? Name adulterants.

A ketone. Adulterated with Borneo Camphor, Paraffin, Ammonium Chloride.

2. What are Microscopical descriptions of powdered drugs directed?

To detect adulterants.

3. What is Aconitine?

An Alkaloid obtained from Aconite.

4. Name two true Balsams.

Balsam of Tolu, Balsam of Peru.

5. What two official drugs in the Fam. Zingiberaceae?

Cardamom, Ginger.

6. What alkaloids are found in Ipecac?

Emetine, Choline.

7. *What is the botanical name of the plant from which Oil of Rose is obtained?

Rosa Damascena.

8. Name a sudorific leaf drug, a rubefacient seed drug, and a poisonous rhizome drug.

- (a) Pilocarpus.
- (b) Sinapis Nigra.
- (c) Gelsemium.

9. *Name a gum resins in the Fam. Umbelliferae.
Asafoetida.
10. Name two drugs whose chief property is astringent.
Kino, Galla.
11. *Name two narcotic drugs.
Opium, Belladonna.
12. *What three drugs are used solely as bitter tonics?
Gentian, Quassia, Calumba.
13. Name two drugs that are emmenagogue.
Cimicifuga, Ergot.
14. *What drug is used chiefly as an anthelmintic?
Santonin.
15. *What drug is used chiefly as a taenifuge?
Aspidium.
16. *Name three drugs recognized as oxytocics.
Cotton Root Bark, Oil of Savin, Oil of Tansy.
17. What is Red Saunders?
The wood of Pterocarpus Santalinus.
18. What is Sandal Wood?
The wood of Santalum album.
19. *What are the active ingredients in Senna, Cantharides, Cocculus Indicus?
(a) Cathartic Acid.
(b) Canthariden.
(c) Picrotoxin.
20. What is the principal drying oil?
Linseed Oil.
21. What is Aloin?
A Pentoside or a mixture of pentosides obtained from Aloes.

22. What is the source of Butter of Cocoa?
The seed of *Theobroma Cacao*.
23. *How many Cinnamons are official? Name them.
Two. *Cinnamomum Saigonicum*. *Cinnamomum Zeylancium*.
24. *What is Spartine Sulphate?
The neutral sulphate of an alkaloid obtained from *Scoparius*.
25. What action have alkaloids on litmus paper?
Turn red litmus paper blue.
26. *Name two drugs that dilate the pupil, and two that contract it.
(a) *Belladonna*, *Stramonium*.
(b) *Opium*, *Physostigma*.
27. Name two Oleoresins, two Resins, and two Gum Resins.
(a) *Copaiba*, *Canada Turpentine*.
(b) *Scammony*, *Mastic*.
(c) *Gamboge*, *Myrrh*.
28. *What is Santonine?
A neutral principle obtained from *Santonica*.
29. How should Commercial Licorice Root be preserved?
By the addition of Chloroform or Carbon Tetrachloride.
30. What is Elaterin? Give source and dose.
A neutral principle obtained from *Elaterium*. Dose, 1-2 gr.
31. *What are the U. S. P. requirements of Cinchona bark?
Must yield 5 percent of total alkaloids, of cinchona.
32. *Why should Wild Cherry Bark be gathered in the autumn?
It yields more hydrocyanic acid and contains more tannin.
33. *What two important alkaloids are obtained from *Hyoscyamus*?

Hyoscyamine, Hyoscine.

34. What is the official salt of Hyoscyamine?
Hyoscyamine Hydrobromide.
35. Name the official preparations of Stramonium and state what part of the plant they are made from.
Extract of Stramonium pilular, Extract of Stramonium powdered, Tincture Unquantum Stramonii of Stramonium, all made from the leaves.
36. Name one drug in the Fam. Lauracea; one in the Fam. Umbelliferæ; and one in the Fam. Guittiferæ.
(c) Gamboge.
(b) Conium.
(a) Camphor.
37. What is Eucalyptol?
An Organic Compound obtained from the volatile oil of Eucalyptus globulus.
38. *What drug in the Fam. Berberidæ?
Podophyllum.
39. What is the chemical name for Volatile Oil of Mustard?
Allyl iso-thiocyanate.
40. What kinds of Cinchona are used in the Tinctures of Cinchona?
The compound tincture contains the Red Chincona. The simple tincture contains Chincona.
41. *To what is the astringent property of Rhubarb due?
To rheo-tannic acid.
42. *How does the alkaloid Morphine differ from other alkaloids?
It is precipitated by alkalis but is soluble in excess.

43. What poison is derived from one of the official substances of animal origin?
Cantharadin.
44. *From what is Veratine obtained?
From the seed of *Asagraea officinalis*.
45. What are the official preparations of *Nux Vomica*?
What is the alkaloidal strength of each?
Fluid Extract 2.37-2.63 and Extract 15.2-16.8, Tincture .237-.263.
46. *In what different forms is *Opium* official?
Opium, Powdered Opium, Deodorized Opium, Granulated Opium.
47. Give the official name of *Chamomile*.
Matricaria.
48. *How can *Opium* be deodorized? What principle is removed?
(a) By treating it with Benzoin.
(b) *Narcotine*.
49. What are the official preparations of *Colchicum*
(a) seed, (b) of the root?
(a) Fluid Extract of *Colchicum* Seed.
Tincture of *Colchicum* Seed.
(b) Extract of *Colchicum* Root.
50. What U. S. P. drug is nearly pure olein?
Expressed Oil of Almond.
51. *Name two sources of Oil of Anise.
Pimpinella Anisum. *Illicium Verum*.
52. Give adulterants of *Vanilla*.
Tonka Bean, Synthetic Vanillin.
53. *State the difference between Oil of Nutmeg and Oil of Mace.
Oil of Nutmeg is a volatile oil made by distilling nutmegs. Oil of Mace is a fixed oil made by expressing nutmegs.

54. *Is Oil of Sweet Almond obtained from the Bitter or sweet almond, and by what process?
From either, the bitter or the sweet almond, by expression.
55. *From what and by what process is Oil of Bitter Almond obtained?
From the bitter almond by maceration with water and subsequent distillation.
56. *Name three sources of Synthetic Vanillin.
Eugenol, Coniferon, Benzoin.
57. Name two drugs that contain Bererine.
Hydrastis, Columba.
58. *What four drugs contain volatile or amorphous alkaloids?
Tobacco, Lobelia, Scoparius and Ergot.
59. From what is Hygrine obtained?
From the leaves Erythroxylon Coca.
60. What part of Calocynth is used?
The Fruit.
61. *What acid is made from Oil of Wintergreen?
Salicylic Acid.
62. From what part of the plant is Atropine chiefly obtained?
The Root.
63. Name two official drugs that yield Sulphurated Volatile oils.
Sinapis Nigra, Asafoetida.
64. *Name two crude drugs that have been standardized.
Jalap, Opium.
65. What is the Synonym for the alkaloid in Calabar Bean?
Eserine.

66. What is the official name for Artificial Oil of Wintergreen?
Methyl Salicylate.
67. How is Hydrastine prepared?
Either from Hydrastis or Synthetically.
68. *What seed drug yields a drastic and vesicant fixed oil?
The seed of Croton Tiglium.
69. What fruit drug has an odor like that of mice?
Conium.
70. What is Adeps Lanæ Hydrosus?
The purified fat of the wool of Sheep.
71. What is Chrysarobin?
A mixture of principles extracted from Goa Powder, a substance found deposited in the wood of Andira Araroba. Fam. Leguminosae.
72. What is Gambier?
An extract prepared from the leaves and twigs of Orouparia Gambier.
73. What is Kino?
The spontaneously dried juice of Pterocarpus Marsullium. Fam. Leguminosae.

Admissions, Deletions and Changes

ARTICLES ADDED TO PART I, U. S. P. IX.

Acidum Phenylcinchoninicum.
Aethylmorphinae Hydrochloridum.
Agar.
Aqua Destillata Sterilisata.
Aspidosperma.
Betaeucainae Hydrochloridum.
Bismuthi Betanaphtholas.

Caffeinae Sodio-Benzoeas.
Calcii Glycerophosphas.
Calcii Lactas.
Cotarninae Hydrochloridum.
Creosoti Carbonas.
Diacetylmorphina.
Diacetylmorphinae Hydrochloridum.
Diastasum.
Emetinae Hydrochloridum.
Emplastrum Cantharidis.
Emplastrum Elasticum.
Emplastrum Resinae.
Extractum Aconiti.
Extractum Fellis Bovis.
Extractum Gelsemii.
Extractum Hydrastis.
Extractum Viburni Prunifolii.
Fluidextractum Aspidospermatis.
Fluidextractum Sabal.
Glucosum.
Hydrargyri Salicylas.
Hydrastinae Hydrochloridum.
Hypophysis Sicca.
Liquor Hypophysis.
Liquor Sodii Chloridi Physiologicus.
Liquor Sodii Glycerophosphatis.
Magma Bismuthi.
Magma Magnesiae.
Nitrogenii Monoxidum.
Oleoresina Petroselini.
Oleum Pini Pumilionis.
Oleum Sesami.
Oxygenium.
Paraformaldehydum.
Petroselinum.
Phenolphthaleinum.
Potassa Sulphurata.
Quininae Dihydrochloridum.
Quininae et Ureae Hydrochloridum.
Quininae Tannas.
Scammoniae Radix.

Serum Antidiphthericum Purificatum.
 Serum Antidiphthericum Siccum.
 Serum Antitetanicum.
 Serum Antitetanicum Purificatum.
 Serum Antitetonicum Siccum.
 Sodii Benzoesulphimidum.
 Sodii Cacodylas.
 Sodii Cyanidum.
 Sodii Glycerophosphas.
 Sodii Indigotindisulphonas.
 Sodii Perboras.
 Sodii Sulphis Exsiccatus.
 Terra Silicea Purificata.
 Theophyllina.
 Toxitebellae Hydrargyri Chloridi Corrosivi.
 Trinitrophenol.
 Uranii Nitrates.
 Virus Vaccinicum.

CHANGES IN OFFICIAL LATIN TITLES.

U. S. P. VIII.

U. S. P. IX.

Alcohol Absolutum -----	Alcohol Dehydratum
Aqua Hydrogenii Dioxidum -----	{ Liquor Hydrogenii Dioxidum.
Calx Sulphurata -----	{ Calcii Sulphidum Crudum.
Cannabis Indica -----	Cannabis.
Cardamomum -----	Dardamomi Semen.
Charta Sinapis -----	Emplastrum Sinapis.
Elixir Adjuvans -----	Elixir Glycyrrhizae.
Extractum Cannabis Indicae -----	Extractum Cannabis.
Extractum Rhamni Purshianae -----	{ Extractum Cascarse Sagradae.
Ferri et Quininae Citris Solubilis --	Ferri et Quininae Citras.

Ferri Phosphas Solubilis -----	Ferri Phosphas.
Fluidextractum Cannabis Indicae---	{ Fluidextractum Cannabis.
Fluidextractum Rhamni Purshainae {	Fluidextractum Cascarae Sagradae.
Fluidextractum Rhamni Purshainae Aromaticum-- -----	{ Fluidextractum Cascarae Sagradae Aromaticum.
Fluidextractum Veratri-----	{ Fluidextractum Veratri Viridis.
Glandulae Suprarenales Siccae ----	Suprarenalum Siccum.
Glandulae Thyroideae Siccae-----	Thyroideum Siccum.
Hyoscinae Hydrobromidum -----	{ Scopolaminae Hydrobromidum.
Methythioninae Hydrochloridum --	{ Methylthioninae Chloridum.
Oleum Aurantii Corticis -----	Oleum Aurantii.
Oleum Betulae-----	Methylis Salicylas.
Oleum Cinnamomi -----	Oleum Cassiae.
Oleum Gaultheriae -----	Methylis Salicylas.
Oleum Lavandulae Florum-----	Oleum Lavandulae.
Oleum Picis Liquidae -----	{ Oleum Picis Liquidae Rectificatum.
Resina Scammonii -----	Resina Scammoniae.
Rhamnus Purshiana -----	Cascara Sagrada.
Tinctura Cannabis Indicae -----	Tinctura Cannabis.
Tinctura Veratri -----	Tinctura Veratri Viridis.
Veratrum -----	Veratrum Viride.

CHANGES IN OFFICIAL ENGLISH TITLES.

U. S. P. VIII.

U. S. P. IX.

Acetanilide-----	Acetanilid.
Wool-Fat-----	Wool Fat.
Hydrous Wool-Fat-----	Hydrous Wool Fat.
Absolute Alcohol-----	Dehydrated Alcohol.
Sulphurated Lime-----	Crude Calcium Sulphide.
Indian Cannabis-----	Cannabis.
Cardamon-----	Cardamon Seed.
Cloves-----	Clove.
Mustard Paper-----	Mustard Plaster.
Adjuvant Elixir-----	Elixir of Glycyrrhiza.
Extract of Indian Cannabis-----	Extract of Cannabis.
Soluble Iron and Quinine Citrate--	Iron and Quinine Citrate
Soluble Ferric Phosphate-----	Ferric Phosphate.
Fluidextract of Cannabis Indicae--	{ Fluidextract of Cannabis.
Desiccated Suprarenal Glands----	Dried Suprarenals.
Desiccated Thyroid-----	Dried Thyroids.
Hyoscine Hydrobromide-----	{ Scopolamine
Methylthionine Hydrochloride-----	Hydrobromide.
Oil of Orange Peel-----	Methylthionine Chloride
Oil of Betula-----	{ Oil of Orange.
Oil of Gaultheria-----	Methyl Salicylate
Oil of Lavender Flowers-----	(From Betula)
Oil of Tar-----	Methyl Salicylate
Tincture of Cannabis Indica-----	(From Gaultheria.)
Tincture of Veratrum-----	{ Oil of Lavender.
Blue Ointment-----	Ractified Oil of Tar.
Veratrum-----	Tincture of Cannabis.
	{ Tincture of Veratrum
	Viride.
	{ Diluted Mercurial
	Ointment.
	Veratrum Viride.

SYNONYMS.

The Latin official names and the most common synonyms of the following are:

Absinthium.	Wormwood.
Acentanilidum.	Antifebrin.
Acetum Opii.	Black Drop.
Aconitum.	Monk's Hood.
Antipyrine.	Phenazone.
Acidum Carbolicum.	{ Phenic Acid.
	{ Phenol.
Acidum Citricum.	Acid of Lemons.
Acidum Hydrochloricum.	{ Muriatic Acid.
	{ Spirit of Salt.
Acidum Nitricum.	Aqua Fortis.
Acidum Nitro-Hydrochloricum.	Aqua Regia.
Acidum Tannicum.	{ Gallotannic Acid.
	{ Tannin.
Acidum Sulphuricum.	Oil of Vitriol.
Acidum Sulphuricum Aromaticum. ..	Elixir of Vitriol.
Acidum Oxalicum.	Acid of Sugar.
Alcohol.	Spirit of Wine.
Ammonii Carbonas.	{ Hartshorn.
	{ Sal Volatile.
Ammonii Chloridum.	Sal Ammoniac.
Antimonii Sulphuratum.	Kermes Mineral.
Antimonii et Potassi Tartras.	Tartar Emetic.
Acidum Arsenosum.	Ratsbane.
Aspidum.	{ Male Fern.
	{ Felix-mass.
Belladonna.	Deadly Nightshade.
Benzinum.	{ Petroleum Benzin.
	{ Petroleum Ether.
Caffeina.	Theine.

Calx Chlorata.....	Bleaching Powder.
Cantharis.	Spanish Flies.
Capsicum.	{ Cayenne Pepper.
	{ African Pepper.
	{ Bird Pepper.
Carbo Ligni.....	Charcoal.
Cassia Fistula.....	Purging Cassia.
Ceratum Resina.....	Basilicon Ointment.
Cetraria.	Iceland Moss.
Chloral.	Chloral Hydrate.
Chondrus.	Irish Moss.
Cimicifuga.	Black Cohosh.
Cinchona.	Peruvian Bark.
Colchicum.	Meadow Saffron.
Collodium Cantharidatum.....	Blistering Collodion.
Colocynthis.	Bitter Apple.
Creosotum.	Oil of Smoke.
Cupri Sulphas.....	{ Blue Stone.
	{ Blue Vitriol.
	{ Roman Vitriol.
Cypripedium.	Lady's-slipper.
Digitalis.	Fox Glove.
Elastica.	India Rubber.
Emplastrum Plumbi.....	Diachylon Plaster.
Emplastrum Resina.....	Adhesive Plaster.
Emulsum Amygdalae.....	Milk of Almonds.
Ergota.	{ Spurred Rye.
	{ Blasted Rye.
	{ Rye Smut.
Eriodictyon.	{ Yerba Santa.
	{ Mountain Balm.
Ferri Sulphas.....	{ Vitriol of Mars.
	{ Copperas.
	{ Green Vitriol.
Ferrum Reductum.....	Iron by Hydrogen.

Gelsemium.	Yellow Jasmine.
Glyceritum Amylum.	Starch Jelly.
Glycyrrhiza.	{ Licorice Root. Sweet Root.
Gossypium Purificatum.	
Hamamelis.	Witch Hazel.
Hedeoma.	Pennyroyal.
Hydrargyri Chloridum Mite.	{ Mild Chloride of Mer-
	cury.
	{ Sub-chloride of Mer-
Hydrargyri Chloridum Corrosivum.	cury.
	{ Proto Chloride of Mer-
	cury.
Hydrargyri Iodidum Flavum.	{ Corrosive Sublimate.
	{ Per-Chloride of Mercu-
	ry.
Hydrargyri Iodidum Rubrum.	{ Corrosive Chloride of
	Mercury.
	{ Bi-Chloride of Mercury.
Hydrargyri Oxidum Rubrum.	{ Protoiodide of Mercury.
	{ Yellow (or Green) Iodide
	of Mercury.
Hydrargyrum.	{ Biniodide of Mercury.
	{ Red Iodide of Mercury.
	Red Precipitate.
Hydrargyrum.	Quicksilver.
Hydrargyrum Ammoniatum.	White Precipitate.
Hydrastis.	{ Yellow Root.
	{ Yellow Puccoon.
	Golden Seal.
Hydrargyrum Cum Creta.	Gray Powder.
Infusum Senna Compositum.	Black Draught.
Kamala.	Rottlera.
Linimentum Ammonia.	Volatile Liniment.
Linimentum Calcis.	Carron Oil.
Linimentum Saponis Mollis.	Tincture of Green Soap.

Liquor Ammonii Acetatis.....	Spirit of Mendererus.
Liquor Arseni et Hydrargyri Iodidi..	Donovan's Solution.
Liquor Ferri et Ammonii Acetatis....	Basham's Mixture.
Liquor Ferri Subsulphatis.....	Monse's Solution.
Liquor Iodi Compositus.....	Lugol's Solution.
Liquor Plumbi Subacetatis.....	Goulard's Extract.
Liquor Potassii Arsenitis.....	Fowler's Solution.
Liquor Sodae Chlorata.....	Labarraque's Solution.
Liquor Zinci Chloride.....	Burnett's Disinfecting Fluid.
Lobelia.	Indian Tobacco.
Lycopodium.	{ Club Moss. Vegetable Sulphur.
Magnesia.	
Magnesii Sulphas.	{ Light Magnesia.
	{ Calcined Magnesia.
Massa Ferri Carbonatis.....	{ Bitter Salts.
	{ Epsom Salts.
Massa Hydrargyri.....	Vallet's Mass.
Matricaria.....	{ Blue Pill.
	{ Blue Mass.
Methyl Salicylas.....	German Chamomile.
Mistura Glycyrrhiza Composita.....	{ Artificial Oil of Winter Green.
	{ Brown Mixture.
Nux Vomica.....	{ Dog Button. Quaker Button.
Opium.	
Physostigma.	Theibacum.
Pilocarpus.	Calabar Bean.
Podophyllum.	Jaborandi.
	{ May Apple. Mandrake.
Potassii et Sodii Tartras.....	Rochelle Salts.
Potassi Nitras.....	Saltpeter.
Pulvis Effervescens Compositus.....	Seidlitz Powder.
Pulvis Jalapae Compositus.....	Pulvis Purgans.

Pyrogallol.	Pyrogallic Acid.
Resina.	Colophony.
Sanguinaria.	Blood Root.
Sapo Mollis.....	Green Soap.
Scilla.	Sea Onion.
Sevum.	Mutton Suet.
Soda.	{ Caustic Soda. Sodium Hydrate.
Sodii Boras.....	
Sodii Bicarbonas.....	Borax.
	Baking Soda.
Sodii Carbonas.....	{ Sal Soda. Washing Soda.
Sodii Sulphas.....	
	Glauber Saltz.
	Horse Salts.
Spigelia.	Pink Root.
Spiritus Atheris.....	{ Golden Tincture. Hoffman's Anodyne.
Spiritus Glonoini.....	Spirit of Nitroglycerin.
Spiritus Myrciae.....	Bay Rum.
Staphisagria.	Stavesacre.
Stillingia.	{ Queen's Root. Queen's Delight.
Stramonii.	Jimsen Seed.
Syrupus Scillae Compositus.....	Cox's Hive Syrup.
Taraxicum.	Dandelion.
Terebinthina Canadensis.....	{ Canada Balsam. Balsam of Fir.
Tinctura Benzoini Compositae.....	Turlington's Balsam.
Tinctura Cinchonae Compositae.....	Haxham's Tincture of Bark.
Tinctura Lobeliae.....	Tincture of Indian To- bacco.
Tinctura Opii.....	{ Tincture Thebaica. Laudanum.
Tinctura Strophanthi.....	
	Tincture of Indian Ar- row Poison.

Ulmus.	{ Red Elm.
	{ Slippery Elm.
Unguentum Hydrargyri.....	Blue Ointment.
Unguentum Hydrargyri Nitratis.....	Citrine Ointment.
Uva Ursi.....	Bearberry.
Viburnum Prunifolium.....	Black Haw.
Xanthoxylum.	Prickly Ash.
Zinci Oxidi.	Philosopher's Wool.
Zinci Sulphas.....	White Vitriol.

THERAPEUTICAL CLASSIFICATION OF MEDICINES.

1. *What is an Anti-emetic?
A medicine that stops vomiting.
2. *What are Anæsthetics?
Drugs that produce temporary loss or impairment of feeling.
3. *What is an Anodyne?
A medicine that relieves pain.
4. *What are Anthelmintics?
Drugs that expel worms.
5. What are Antiperiodics?
Medicines that arrest morbid periodical movements.
6. What is an Aphordisiac?
Medicine that stimulates venereal desire.
7. *What is an Antiseptic?
Any substance that prevents or checks putrefaction.
8. What is an Astringent?
A medicine that contracts the tissues of the body and prevents excessive discharges.
9. *What is a Carminative?
A medicine that expels air from the bowels.

10. *What is a Cathartic?
A drug that causes evacuation of the bowels
11. *What is a Cholagogue?
A medicine that increases the flow of bile.
12. *What is a Demulcent?
A substance that lubricates the surface to which applied and prevents the contact of irritating particles.
13. What is a Diaphoretic?
A drug that produces perspiration.
14. What is a Drastic?
A powerful cathartic.
15. What is a Diuretic?
A medicine that acts on the kidneys and increases the discharge of urine.
16. What is an Epispastic?
A drug that produces blisters when applied to the skin.
17. What is an Expectorant?
A medicine that facilitates expectoration.
18. *What is a Hepatic?
A drug that acts on the liver.
19. *What is a Hydrogogue?
A medicine that produces watery evacuations and is believed to expel serum.
20. *What is a Lithontriptic?
A medicine that counteracts the formation of calculi in the urinary organs.
21. *What are Narcotics?
Drugs that cause stupefaction and in large doses are poisonous.
22. What is a Nervine?
A medicine that acts on the nervous system and allays nervous excitement.

23. *What is an Oxytocic?
A drug that causes contraction of the uterus.
24. What is a Purgative?
A medicine that physics more powerfully than a cathartic.
25. *What is a Rubefacient?
A drug that produces redness of the skin.
26. What is a Resolvent?
A medicine that allays inflammation and disperses morbid swellings.
27. What is a Refrigerant?
A medicine that depresses abnormal temperature of the body.
28. What is a Sialagogue?
A medicine that increases the flow of saliva.
29. What is a Stimulant?
A drug that temporarily increases the vital forces.
30. *What is a Styptic?
Any substance that will stop the flow of blood.
31. *What is a Sudorific?
A medicine that causes sweating.
32. *What is a Tonic?
A medicine that stimulates the nutritive processes.
33. What is a Vesicant?
A medicine that produces blisters when applied to the skin.
34. *What is a Vulnerary?
A medicine that is healing to wounds.

POSOLGY.

1. *What is Posology?
The science of Dosage.
2. *What do you understand by the dose of a medicine?

The proper quantity to be administered at one time to produce medicinal action.

3. What is the maximum dose?
The largest dose that can be taken with safety.
4. *What is the rule for apportioning doses for Children?

Add 12 to the age, divide this sum by the age, divide the maximum adult dose by this quotient, the last quotient will be the maximum dose for a child of the age taken. Ex. Age 12 years plus 12 = 24. 24 divided by 12, the age, = 2. 60 gr., maximum dose for an adult divided by 2 = 30 gr., dose for a child 12 years of age.

5. To what extent should the Pharmacist be familiar with doses?

He should know the maximum dose of all poisonous drugs so that he may be able to detect poisonous doses in prescriptions.

AID IN MEMORIZING DOSES.

1. The dose of all infusions is 1 to 4 ozs., except Digitalis, which is 1 dr.
2. Of all poisonous tinctures 5 to 20 minims, except Aconite, Digitalis, and Nux Vomica, which is 1 to 8 minims.
3. Of all wines, $\frac{1}{2}$ to 1 fld. drm., except Opium and Colchicum, which is 5 to 15 minims. (not official).
4. Of all poisonous solid extracts you can give 1-16-1-2 a grain.
5. Of all dilute acids 5 to 20 minims, except dilute Hydrocyanic which is $1\frac{1}{2}$ minims.
6. Of all waters $\frac{1}{2}$ to 1 fld. oz., except Aqua Ammonia which is 10 to 30 minims.
7. Of all syrups, $\frac{1}{2}$ to $2\frac{1}{2}$ dr.

8. Of all mixtures, 2 to 4 drs.
9. Of all spirits, 8 to 30 m.
10. Of all essentials oils, 3 minims, except oil of mustard.
7. We give below a list of the most active remedies, with the average dose of each.

Acetanilidum	3 gr.
Arseni Trioxidum	1-30 gr.
Acidum Gallicum	15 gr.
Acidum Tannicum	5 gr.
Acidum Hydrochloricum	10 m.
Acidum Hydrocyanicum Dilutum	1½ m.
Acidum Phosphoricum Dilutum	30 m.
Acidum Sulphuricum Aromaticum	15 m.
Aconitum	½ gr.
Aconitine	1-400 gr.
Aether	15 m.
Aloe	4 gr.
Aloinum	¼ gr.
Ammonii Carbonas	5 gr.
Ammonii Iodidum	5 gr.
Amyl Nitras	(by inhalation) 3 m.
Antimonii et Potassi Tartras	1-12 gr.
Apomorphinae Hydrochloras	1-20 gr.
Argenti Nitras	1-6 gr.
Arseni Iodidum	1-12 gr.
Atropinae Sulphas	1-120 gr.
Aurii et Sodii Chloridum	1-12 gr.
Belladonnae Radix	¾ gr.
Bismuth Subnitras	8 gr.
Caffeina Citrata	5 gr.
Cereii Oxalas	3 gr.
Chloral	8 gr.

Chrysarobinum	½ gr.
Colchici Semen	3 gr.
Conium	3 gr.
Creosotum	4 m.
Digitalis	1 gr.
Elaterinum	1-20 gr.
Ergota	30 gr.
Extractum Aconiti Fluidum	½ gr.
Extractum Belladonnae Foliorum	¼ gr.
Extractum Cannabis	1-6 gr.
Extractum Cimifugae	4 gr.
Extractum Colchici Radicis	¼ gr.
Extractum Colocynthis	¼ gr.
Extractum Colocynthis Comp	4 gr.
Extractum Ergota	4 gr.
Extractum Gelsemii Fluidum	½ m.
Extractum Hyoscyami	1 gr.
Extractum Lobeliae Fluidum	2½ m.
Extractum Nucis Vomicae	¼ gr.
Extractum Nucis Vomicae Fluidum	1 m.
Extractum Opii	½ gr.
Extractum Physostigmatis	¼ gr.
Extractum Scillae Fluidum	1½ m.
Extractum Stramonii	1-6 gr.
Extractum Veratri Veridis Fluidum	1½ m.
Ferri Chloridum	1 gr.
Ferri Phosphas Solubilis	4 gr.
Ferri Pyrophosphas	4 gr.
Ferrum Reductum	1 gr.
Hydrargyri Chloridum Corrosivum	1-20 gr.
Hydrargyri Chloridum Mite	¼-2½ gr.
Scpalamine Hydrobromide	1-200 gr.
Hyoscyaminae Hydrobromide	1-200 gr.

Iodoformum	4 gr.
Iodum	1-12 gr.
Lactucarium	15 gr.
Liquor Acidi Arsenosi	3 m.
Liquor Arseni et Hydrargyri Iodidi	1½ m.
Liquor Ferri Subsulphatis	3 m.
Liquor Iodi Compositus	3 m.
Liquor Potassii Arsenitis	3 m.
Menthol	1 gr.
Morphinae Sulphas	½ gr.
Oleoresina Capsici	½ gr.
Oleoresina Aspidii	½ dr.
Oleoresina Zingiberis	½ gr.
Oleum Amygdale Amarae	½ m.
Oleum Sinapis Volatile	½ m.
Oleum Tiglii	1 m.
Opium	1 gr.
Opium Deodoratum	1 gr.
Phenol Salicylate Salol	5 gr.
Paraldehydum	½ dr.
Phosphorus	1-120 gr.
Physostigma	1½ gr.
Physostigminae Salicylas	1-60 gr.
Pilulae Phosphori	1
Plumbi Acetas	1 gr.
Phenol	1 gr.
Potassii Iodidum	7½ gr.
Potassii Permanganas	1 gr.
Quininae Sulphas	1½ gr.
Resina Podophylli	1-6 gr.
Resorsinum	2 gr.
Santoninum	1 gr.
Scilla	1½ gr.

Sinapis Alba	2½ dr.
Sodii Arsenas	1-12 gr.
Sodii Boras	12 gr.
Sodii Phosphas Exsiccatus	30 gr.
Sparteinae Sulphas	1-6 gr.
Spiritus Aetheris Nitrosi	30 m.
Spiritus Glonoini	1 m.
Stramonii	1 gr.
Strychninae Sulphas	1-40 gr.
Syrupus Ferri Iodidi	15 m.
Terebenum	4 m.
Terpeni Hydras	4 gr.
Thymol	2 gr.
Tinctura Aconiti	5 m.
Tinctura Cantharidis	1½ m.
Tinctura Digitalis	8 m.
Tinctura Ferri Chloridi	8 m.
Tinctura Gelsemii	4 m.
Tinctura Iodi	1½ m.
Tinctura Nucis Vomicae	8 m.
Tinctura Opii	8 m.
Tinctura Opii Camphorata	1 dr.
Tinctura Physostigmatis	15 m.
Tinctura Scillae	15 m.
Tinctura Stramonii	8 m.
Tinctura Strophanthi	8 m.
Tinctura Veratri Viridis	8 m.
Trituratio Elaterina	½ gr.
Zinci Sulpas	As emetic, 15 gr.

TOXICOLOGY.

1. *What is Toxicology?
The science of poisons.
2. *What is a Poison?
Any agent capable of producing a morbid or dangerous effect upon anything endowed with life.
3. *Into what classes are Poisons divided?
Irritants, narcotics and narcotic irritants.
4. *What are Irritant Poisons?
Poisons that produce irritation and inflammation in the stomach.
5. What are Narcotic Poisons?
Poisons which affect the brain and spinal cord, and produce insensibility.
6. What are Narcotic Irritants?
Substances which have the action of both the irritant and the narcotic poisons.
7. *What are prominent symptoms of aconite poisoning?
A tingling sensation in the lips, tongue and tips of the fingers, followed by vomiting, dryness and constriction of the throat, with irregular action of the heart.
8. *What are the most prominent symptoms of poisoning by Arsenic?
Nausea and faintness; burning pains in the stomach; persistent vomiting of matter, sometimes brown or gray, or streaked with blood.
9. *What are the most prominent symptoms of Belladonna poisoning?
Drowsiness, great thirst, dryness of the throat, widely dilated pupils, strong pulse and loss of speech.
10. *What are the prominent symptoms of Carbolic Acid poisoning?

The surfaces which have been in contact with the poison are whitened and hardened; a burning pain from the mouth to the stomach; lowering of the pulse and temperature, contraction of the pupils.

11. *What are the prominent symptoms of Chloral poisoning?

Deep sleep, accelerated pulse, widely dilated pupils, deep, irregular respiration. Later, the pupils contract, circulation and respiration fail.

12. What are the prominent symptoms of poisoning by Copper Salts?

The vomited mater is green.

13. What are the prominent symptoms of poisoning by Digitalis?

Nausea, vomiting, slowness of the pulse, a sense of oppression in the chest, coldness of the extremities.

14. *What are the symptoms of poisoning by Hydrocyanic Acid?

Immediate constriction of the throat, a sense of pressure in the head; tetanic convulsions, loss of consciousness.

15. *What are the prominent symptoms of poisoning by the Mineral Acids?

Acute, burning pain extending from the throat to the stomach, vomiting of dark, tarry and highly acid material.

16. *What are the prominent symptoms of poisoning by the Caustic Alkalies?

Soapy taste, burning pain from the throat to the stomach, vomiting of alkaline substances.

17. What are the prominent symptoms of Phosphorus poisoning?

Eruptions of gas having the taste of phosphorus; the mouth when observed in the dark is frequently faintly luminous; the vomited matter also is frequently luminous.

ANTIDOTES.

1. *What is an Antidote?
Anything used to counteract the effects of a poison.
2. *How would you antidote Aconite poisoning?
Give emetics, stimulants external and internal, external heat; keep patient flat on back.
3. *What would you give to antidote an overdose of Arsenic?
Ferri Oxidum Hydratum, Ferri Oxidum Hydratum cum Magnesia.
4. *What is a good antidote to Carbolic Acid?
Emetics, or stomach pump (used with great care), albuminous substances, syrup of lime and stimulants.
5. *How would you antidote Chloroform?
Fresh air, artificial respiration, brandy and ammonia, hypodermic injections of tincture of digitalis and atropine.
6. *What is the antidote for poisoning by Belladonna?
Emetics, physostigma or pilocarpine, cold to head, nitroglycerin.
7. *How would you antidote Corrosive Sublimate?
Give albumen, white of egg, equal parts of lime water and milk, followed by emetics.
8. What is the antidote for Croton Oil?
Give emetics, wash out the stomach with mucilaginous fluids containing opium.
9. What is an antidote for Salts of Copper?
Yellow prussiate of potash, reduced iron or soap.
10. How would you antidote Conium?
With emetics, followed by stimulants internal and external.
11. *What is a good antidote for Cantharides?
Emetics, emollient drinks, opiates by mouth and rectum, large draughts of water to flush the kidneys.

12. How would you antidote Digitalis?
Give evacnants, stimulants internal and external, tincture of acornite.
13. What is the antidote for Elaterin?
Demulcent drinks, enemata of opium and external heat.
14. *What is the antidote for Chlorine Water?
Albumen, white of eggs, milk, flour.
15. *How would you antidote Mineral Acids?
With chalk, magnesia, or any other mil alkali, emollient drinks and fixed oils.
16. *What is the chemical antidote to Salts of Silver?
Sodium chloride, forms insoluble silver chloride.
17. *How would you antidote Hydrocyanic Acid or a Cyanide?
Fresh air, artificial respiration, cold applications to the head and spine, cobaltous nitrate.
18. What is the specific antidote to Iodine?
Starch, also emetic, demulcent drinks, opium, and external heat.
19. *What is the antidote to acute Lead poisoning?
Magnesium sulphate followed by emetics, also opium and milk.
20. *What is the antidote to Strychnine or Nux Vomica?
Chloral, chloroform, potassium bromide, tincture of cannabis indica.
21. *How would you antidote Opium?
Emetics or stomach pump, stimulants external and internal, cold affusions, perambulatory treatment.
22. What is the antidote to Oxalic Acid?
Lime in any form. Syrup of Lime best.
23. What is the antidote to Phosphorus?
Sulphate of copper in emetic doses as a chemical antidote. Oil of turpentine has been used with good results.
Give no oily or fatty matter.

24. *How would you antidote the Caustic Alkalies?
With dilute acetic acid, citric acid, lemon juice, fixed oils and demulcents.
25. How would you antidote poisoning from inhalation of the vapor of Ammonia?
By inhalation of the vapor of hydrochloric acid.
26. *What is the antidote to tobacco poisoning?
Emetics, stimulants external and internal. Nux vomica.
27. *How would you antidote poisoning by Zinc Salts?
Give sodium carbonate, emetics and warm demulcent drinks.
28. In all ordinary cases of poisoning how would you proceed?
Administer a prompt emetic and send for a physician.

INCOMPATIBILITY.

1. *What is Incompatibility?
It may be defined as a term used to express the effects produced in pharmaceutical preparations by chemical decomposition or physical dissociation.
2. *Name three kinds of Incompatibility.
(a) Chemical.
(b) Physical.
(c) Therapeutical.
3. *What is Chemical Incompatibility?
A form of incompatibility which invariably results in the decomposition of one or more of the ingredients entering into the preparation or prescription.
4. *What is Physical Incompatibility?
It is sometimes known as pharmaceutical incompatibility—a condition which usually arises from the admixture of pharmaceutical preparations which results in the physical dissociation of one or more of the constituents.

5. *How does Physical Incompatibility differ from Chemical Incompatibility?

It differs from chemical incompatibility in the absence of chemical action.

6. What is Therapeutical Incompatibility?

It is a condition which arises from the combination of remedies which are mutually opposed to one another in therapeutical effect.

7. Is Therapeutical Incompatibility of much interest to the pharmacist?

No. The fault lies wholly with physician.

8. *Which form of incompatibility may be intentional on the part of the prescriber?

Chemical incompatibility is very often intentional, as in the combination of lead acetate and zinc sulphate in the same solution, the insoluble lead sulphate which is formed is the important ingredient in the preparation.

9. *What form of Incompatibility is most dangerous, and why?

Chemical. Because new, and very often poisonous, compounds are formed when chemicals react on one another.

10. *The following list of Incompatibilities should be thoroughly understood so that when met with in practice they may be recognized at once:

1. Decomposition is almost sure to take place when strong acids are mixed with salts.
2. Alkalies should never be mixed with salts of the metals.
3. Alkaloids should not be dispensed with alkalies.
4. Glucosides are decomposed by strong acids.
5. Alcoholic tinctures and fluid extracts are incompatible with aqueous liquids.

6. All drugs that contain tannin form inky compounds with the salts of iron.
7. The iodides are incompatible with acids.
8. Strong mineral acids decompose alcohols and form ethers.
9. Never combine free acids with carbonates or hydrates.
10. Tannin forms a precipitate in solutions that contain albumen or gelatine.
11. Vegetable infusions are generally incompatible with metallic salts.
12. Silver nitrate or oxide forms an explosive compound with ammonia.
13. Tannic acid, iodine and the soluble iodides are incompatible with alkaloids.
14. Potassium iodide and potassium chlorate form a poisonous compound, when mixed.
15. Spirit of nitrous ether is incompatible with sodium salicylate. The mixture becomes dark and develops the odor of oil of wintergreen.
16. Sodium salicylate is incompatible with quinine.
17. Potassium iodide and syrup of ferrous iodide give a precipitate of ferrous carbonate.
18. Sulphates are incompatible with lead salts; they form the insoluble lead sulphate.
19. Syrup of lactucarium is decomposed by alkalies.
20. The hypophosphites are incompatible with the salts of silver or mercury.
21. Potassium chlorate or permanganate will explode if triturated with tannin, sugar, sulphur, sulphides, glycerin, alcohol, tinctures or ether.
22. Almond emulsion is separated by alcoholic liquids.
23. Spirits of nitrous ether is incompatible with all drugs containing tannin.

24. Acids precipitate the sweet principle of glycyrrhiza and eriodictyon.
25. Collodion is coagulated by carbolic acid.
26. Ammoniated tincture of guaiac is incompatible with all preparations that contain salts of mercury or alkaloids.
27. Glycerin, borax and carbonates will explode if mixed.
28. All liquid preparations of opium are incompatible with lead salts; they precipitate meconate of lead.
29. All silver salts explode when triturated with organic matter.
30. Antipyrine should be dispensed alone or in simple syrup, as it is incompatible with almost everything.
31. Chloral should not be mixed with alkaline carbonates or hydrates. They form chloroform when mixed.
32. Mucilage of acacia is precipitated by solution of lead subacetate or by alcohol.
33. Never dispense a prescription that contains free nitric acid and free glycerin. They will form nitroglycerin, which is highly explosive.
34. Uva ursae is incompatible with spirits of nitrous ether.
35. Pepsin should be dispensed with acids. It will be thrown out of solution with alkalies.
36. Pancreatin is rendered inert by contact with acids.
37. Volatile oils are incompatible with aqueous liquids in quantities exceeding one drop to the fluid ounce.
38. Fixed oils and copaiba with aqueous liquids.
39. Bromides precipitate alkaloids, but the change may be prevented by the addition of a few drops of hydrochloric acid.
40. Iodine is incompatible with chloral, starch, alkalies and metallic salts.
41. Lead acetate is incompatible with hydrochloric acid, sulphuric acid and sulphates, carbonates, iodine, potassium iodide.

42. Corrosive sublimate will be decomposed when in solution, by the addition of potassium iodide, carbonates or tannin.
43. Calomel should not be mixed with acids, acid salts carbonates, iodine, potassium iodide.
44. Potassium iodide will be decomposed, when in solution, by the addition of lead and mercury salts, silver nitrate and chlorine water.
45. Potassium bromide must not be mixed with acids, chlorine water or the compounds of mercury.
46. Silver nitrate is incompatible with acids, acetic, hydrochloric, hydrocyanic, sulphuric; and their salts, iodine potassium iodide and potassium bromide.
47. Chlorates, nitrates and hypophosphites explode when triturated with organic substances.
48. Chromic acid explodes almost instantly with glycerin.

PREScriptions.

1. *What is a Prescription?

A prescription may be defined as the formula which a physician writes specifying the medicinal substances he intends to be administered to a patient.

2. *What language is used in writing prescriptions, and why?

The Latin language.

- (a) Because it is the language of science.
- (b) The Latin names of drugs are nearly the same in all countries.
- (c) It is frequently advisable to withhold from the patient the names and properties of the medicines that are to be administered.

3. *Into how many parts may a prescription be divided for the purpose of study? Name them.

Six.

- (a) The superscription.
- (b) The name of the patient.
- (c) The inscription.
- (d) The subscription.
- (e) The signa.
- (f) The name of the physician.

4. *What is the Superscription?

This invariably consists of the symbol, \mathcal{R} , which is an abbreviation of the word recipe, "take."

5. *What is the Inscription?

The part of the prescription that contains the names and quantities of the ingredients.

6. *What is the Subscription?

The directions to the compounder.

7. *What is the Signa?

The directions to the patient.

8. *If you were called upon to fill a prescription, how would you proceed?

- (a) Read it carefully.
- (b) Notice bad abbreviations.
- (c) Omissions of amounts.
- (d) Transpositions of amounts.
- (e) Estimation of doses.
- (f) Incompatibility.
- (g) Chemical Incompatibility.
- (h) Intentional Incompatibility.
- (i) Pharmaceutical Incompatibility.
- (j) Therapeutical Incompatibility.

9. *When would you filter a prescription?

When we know that the precipitate is inert and when so ordered by the physician.

10. *How would you change the ending of nouns in the nominative case to the genitive in writing prescriptions?

Nouns ending in *a* change to *ae*.
 Nouns ending in *um* or *us* change to *i*.
 Nouns ending in *is* change to *itis*.
 Nouns ending in *as* change to *atis*.
 Nouns ending in *x* change to *cis*.
 Nouns ending in *o* change to *inis*.
 Nouns ending in *al*, *ol* or *or* by adding *is*.

11. State what, if anything, is wrong with the following prescription:

R Chloralisgr. lx.
 Sodi Bicarbonatis.....gr. xc.
 Aqua Menth. Pip.....q. s. f³iv.

Note.—The action of sodium bicarbonate on the choral will form chloroform.

12. Would you fill this prescription or not, and why?

R Sodii Salicylatis.....gr. xc.
 Spiriti Aetheris Nitrosi.....f³ij.
 Quininæ Sulphatis.....gr. xxx.
 Alcoholis.f³iv.
 Aquæ Destillata.....q. s. f³ij.

Note.—When sodium salicylate and spirits of nitrous ether are mixed, the solution turns very dark and develops the odor of oil of wintergreen. The alkaline sodium salicylate will precipitate the alkaloid, quinine. The prescription should not be dispensed unless the physician can be notified of it immediately.

13. How would you dispense this in powder?

R Cploralisgr. lx.
 C amphorægr. lxxx.
 Cocainæ Hydrochloratis.....gr. v.

Note.—Use starch to absorb the moisture, otherwise it will liquify.

14. What is wrong with the following prescription?

R Potassi Iodidigr. xl.
 Acidi Nitrici.....gtt. x.
 Syrûpi.....q. s. f̄ij.

Note.—The acid will liberate free iodine from the potassium iodide, which will act as an irritant poison.

15. What is the incompatibility in the following prescription?

R Morphinæ Sulphatis.....gr. ij.
 Acidi Tanici.....gr. xxx.
 Cocainæ Muriatis.....gr. iiij.
 Aquæ Destillata.....q. s. f̄ij.

Note.—The tannic acid will precipitate the alkaloids.

16. What is wrong with the following prescription?

R Hydrargyri Bichloridi.....gr. ij.
 Tincturæ Guaiaci Ammoniati.....f̄ij.
 Aquæ.....q. s. f̄iv.

Note.—The ammonia water will precipitate the mercury as ammoniated mercury.

17. How would you fill this prescription?

R Tincturæ Ferri Chloridi.....f³iv
 Spiriti Aetheris Nitrosi.....f³ij.
 Mucilagines Acaciæf³i.
 Syrupi.....ad. f³vi.
 Misce.

Note.—Dilute the alcoholic liquids and the mucilage with syrup, and mix the whole. This will prevent the precipitation of the acacia.

18. What, if anything, is wrong with this prescription?

R Potassii Iodidi.....gr. xx.
 Syrupi Ferri Iodidi.....f³iv.
 Aquæ Camphoræq. s. f³iv.
 Misce. Fiat solutio.

Note.—This will precipitate ferrous carbonate, owing to the presence of potassium carbonate, which is combined with the potassium iodide when it is crystallized from an alkaline solution and exposed to the air.

19. Criticise the following prescription:

R Plumbi Acetatis.....gr. xv.
 Tincturæ Opii.....f³ij.
 Aquæ.....q. s. f³vj.

Note.—Precipitates meconate of lead.

20. What is wrong with the following prescription?

R Pepsini.....gr. lx.
 Sodi Boratis.....gr. xc.
 Tinctura Nucis Vomicae.....f³j.
 Aquæ Destillata.....q. s. f³iv.

Note.—The alkali throws the pepsin out of solution and precipitates the alkaloids in the *nux vomica*.

21. Criticise the following prescription:

℞ Hydrargyri Bichloridi.....gr. j.
Potassii Iodidi.....gr. x.
Extracta Cinchona F.....f℥iv.

Note.—The potassium iodide forms potassio mercuric iodide with the bichloride of mercury. This is an alkaloidal precipitant and precipitates the alkaloids out of the fluid extract of cinchona.

22. Criticise this prescription:

℞ Liquoriis Plumbi Subacetatis.....f℥iv.
Mucilaginis Acaciæf℥vi.
Aquæ.....q. s. f℥vj.

Note.—The solution of lead subacetate precipitates the mucilage.

23. Criticise this prescription:

℞ Argenti Oxidi.....gr. viij.
Creosotigtts. xij.
Extracta Gentianæ.....q. s.
M. Fiat pilulæ, No. xii.

Note.—Silver oxide will explode when mixed with organic substances. Use valaline as an excipient, and leave out the extract of gentian.

24. Complete the following prescription:

℞ Hydrargyri Bichloridi.....q. s.
Aquæ Destillata.....f℥iv.
Misce. Fiat solutio (1-1000).

Note.—Dissolve 1.83 gr. of mercuric chloride in the required amount of water.

25. How much of the active ingredients should be used in the following?

R Cacaine Hydrochloratis.....q. s.
Aqua Destillata.....1000 c. c.
Misce. Fiat solutio (4%).

Note.—Use 40 grs of cacaine hydrochlorate.

26. How would you mix this?

R Saccharigr. lx.
Potassi Chloratis.....gr. xx.
Acidi Tannici.....gr. xl.
Fiat Pulvis.

Note.—Mix on paper, with a bone spatula, to avoid an explosion.

27. What will be the precipitate in this prescription?

R Potassi Iodidi..... ʒiiss.
Tincturæ Ferri Chloridi..... fʒvi.
Syrupi fʒiv.
Aqua Destillata..... fʒiv.
Misce.
Signa. Ut dictum.

Note.—There will be a black precipitate of free iodine. The mixture is a dangerous combination and should never be dispensed.

28. Criticise this prescription:

R Bismuthi Subnitratis.....gr. xl.
Sodii Bicarbonatis.....gr. xx.
M. Fiat pilulæ, No. xx.

Note.—The bismuth salt is liable to have an acid reaction and by decomposing the sodium bicarbonate may cause the pills to explode.

29. How would you fill this prescription?

R Acidi Salicylici..... \mathfrak{z} ij.
Potassii Bicarbonatis.....gr. lx.
Vini Colchi R..... \mathfrak{f} 3iv.
Aquæ.....ad. \mathfrak{z} iv.

Note.—Potassium bicarbonate is decomposed by the salicylic acid.
Mix in an open vessel to allow the carbon dioxide to escape.
Cork the bottle loosely.

30. Criticise this prescription:

R Quininæ, Sulphatis.....gr. xxx.
Acid Sulph. Dil.....q. s.
F. E. Glycyrrizæ.....ad. \mathfrak{z} ij.

Note.—The names of the ingredients should be abbreviated or all written in full. The fluid extract of glycyrrhiza was evidently added to mask the taste of the quinine, but by using the acid to dissolve the quinine the sweet principle is precipitated and the preparation made more bitter.

CHEMISTRY

The elementary substances of interest to pharmacy
with their symbols, valence and atomic weights.

	VAL	AT. WT.	SYM.
Antimony-----	III.V.	120.	Sb.
Arsenic-----	III.V.	75.	As.
Barium-----	II.	137.9	Ba.
Bismuth-----	III.	209.	Bi.
Bromine-----	I.	80.	Br.
Calcium-----	II.	40.	Ca.
Carbon-----	IV.	12.	C.
Chlorine-----	I.	35.5	Cl.
Copper-----	I.II.	63.	Cu.
Gold-----	I.III.	196.5	Au.
Hydrogen-----	I.	1.	H.
Iodine-----	I.	127.	I.
Iron-----	II.VI.	56.	Fe.
Magnesium-----	II.	24.	Mg.
Mercury-----	I.II.	200.	Hg.
Oxygen-----	II.	16.	O.
Potassium-----	I.	39.	K.
Silver-----	I.	108.	Ag.
Sodium-----	I.	23.	Na.
Sulphur-----	II.	32.	S.
Zinc-----	II.	65.	Zn.

Acid Hydrochloric.....**HCl**
 Acid Nitric.....**HNO₃**

8. What is a Gas?
A body in which the repellent forces are greater than the attractive forces, consequently gases always tend to occupy a larger space.
9. *What is Chemism?
An attractive force which is exerted between the atoms causing them to unite.
10. *What is Cohesion?
Cohesion is that force which binds together molecules of the same kind to form one uniform mass.
11. *What is Adhesion?
Adhesion is that form of attraction which exists between unlike particles of matter when in contact with each other.
12. *What is the law of Definite Proportions?
Any given chemical compound always contains the same elements in the same proportion by weight.
13. *What is an Atom?
An atom is the smallest particle of matter that can enter into a chemical reaction.
14. *What is a Molecule?
A molecule is the smallest particle of matter that can exist in the free state.
15. *What is a Symbol?
A symbol is an abbreviation standing for the name of an element.
16. *What is a Formula?
A formula is a symbolic expression of the constituents of a molecule.
17. *What is Valence?
Valence is the degree of combining power of an atom as compared with hydrogen.

18. *What is understood by Combining Number, or Atomic Weight?

It expresses the proportion by weight in which an element enters into combination.

19. How are Atomic Weights determined?

By the specific gravity of elements and compounds in the form of gas or vapor.

20. In estimating the weights of Elements, what one is taken as the standard?

Hydrogen.

21. Is Hydrogen a solid, liquid or gas?

Gas.

22. *What elementary substance is essential to all animal life?

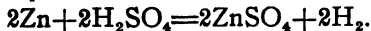
Oxygen.

23. What is Ozone?

An allotropic form of oxygen.

24. *How is Hydrogen prepared?

By acting on zinc with sulphuric acid, according to following equation:



25. What important compound is formed by the combination of Hydrogen and Nitrogen?

Ammonia, NH_3 .

26. What important article of commerce is made by dissolving NH_3 in water?

Aqua Ammonia.

27. *What is formed when Oxygen and Hydrogen combine chemically?
Water, H_2O .
28. What is produced when Hydrogen and Chlorine combine?
Hydrochloric Acid.
29. *What is Oxidation?
The adding of oxygen to a substance.
30. *What is Reduction?
The taking away of oxygen from a body.
31. *What is Analysis?
Analysis is the resolving of a compound into its elements.
32. What is Synthesis?
Synthesis is the building up of a compound from its elements.
33. Name the two compounds of H and O.
Water, Hydrogen Dioxide.
34. *What is Latent Heat?
Heat absorbed by a body before there is a rise in the temperature.
The heat is supposed to be used in rearranging the molecules.
35. What impurities are liable to be in drinking water?
Organic impurities, chlorides, ammonia.
36. *What are Binary Compounds?
Compounds which consist of but two elements.
37. *What is an acid?
A salt of hydrogen, or the combination of an acidulous radical with hydrogen.
38. *What is a Base?
A substance that has the power to neutralize an acid.

39. *What is a Salt?

A salt is the product of the action of an acid on a base.

40. *What is an Acid Salt?

An acid salt is one which is formed by replacing only a part of the hydrogen of an acid by a base.

41. *What is a Normal Salt?

A normal salt is one that is formed by replacing all of the hydrogen of an acid by a metal.

42. *What is a Basic Salt?

A normal salt of a metal combined with the oxide or hydrate of the same metal.

43. *What is an Alkali?

The stronger bases are known as alkalis. They have the power of neutralizing acids and of turning red litmus paper blue.

44. How are Temperature and Pressure of the Atmosphere measured?

(a) Temperature by the Thermometer.

(b) Pressure by the Barometer.

45. *What is the chief use of Nitrogen in the air?

To dilute the oxygen

46. What impurities does the Air contain?

Carbon dioxide, ammonia, ozone, dust and smoke.

47. Name three forms of Free Carbon.

Diamond, graphite and coal.

48. What is absolute Zero?

273 degrees below zero Centigrade. At this temperature all molecular motion ceases.

49. What is the rule for finding the weight of a liter of gas?

Multiply one-half the molecular weight by .0896.

50. *What effect has Temperature on the volume of gas?

A rise of temperature increases the volume, a fall in temperature decreases the volume.

51. *Distinguish between Choke Damp and Fire Damp.

Choke damp is carbon dioxide. It is non-combustible. Fire damp is methane or marsh gas. When mixed with air it is highly explosive.

52. *What is Avogadro's Hypothesis?

Equal volumes of bodies in the form of gas or vapor under the same conditions contain an equal number of molecules.

53. Name the Halogens.

Bromine, Chlorine, Iodine and Fluorine.

54. Explain how Chlorine acts as a bleaching agent.

It acts only in the presence of water (H_2O); the chlorine combines with the hydrogen and liberates the oxygen, and while it is in the free state it readily combines with organic coloring matter and destroys it.

55. What is the Molecular Weight of a compound?

The sum of the weights of the atoms.

56. *What is produced when an Oxide salt is acted upon by an acid?

The product is a salt of the metal and acid radical with a by-product of as many molecules of water as there are oxides present.

57. *What is produced by acting on a Carbonated salt with an acid?

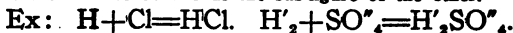
When a carbonated salt is acted upon by an acid the product is a salt of the metal and acid radical with a by-product of as many molecules of water and carbon dioxide as there are carbonates present.

58. *What is the result of acting on a salt of an Organic acid with a strong Mineral acid?

The product is a salt of the metal and mineral acid, and the organic acid is set free.

59. How would you join an acid radical with a metal?

Use the valence of one as the sub-figure of the other.



60. What is the test for Nitrites?

(a) Nitrites bleach a solution of Potassium Permanganate.

(b) When acidulated with acetic acid they give a white precipitate with silver nitrate.

61. *What is the test for HCl and Chlorides?

Silver nitrate gives a white precipitate, insoluble in HNO_3 , but soluble in ammonia.

62. *What is the test for Iodides?

Treat the iodide with chlorine water, add starch paste. The starch will be colored a deep blue.

63. Give the test for Carbonates.

Carbonates effervesce with all strong acids.

64. How is " H_2S ," Hydrogen Sulphide distinguished?

By its odor and by its blackening paper which has been moistened with a solution of lead acetate.

65. What is the test for Benzoates?

Neutral solutions give a flesh colored precipitate with test solution of ferric chloride.

66. What is the test for Salicylates?

They give a red solution with test solution of ferric chloride.

67. *Give the test for Citrates.

Citrates give a white precipitate with silver nitrate, which does not blacken on boiling.

68. *What is the test for Tartrates?

Tartrates give a white precipitate with silver nitrates, which turns black on boiling. When tartaric acid is ignited it gives the odor of burnt sugar.

69. *How would you test for NH_3 ?
It is liberated by strong alkalis, like caustic soda, recognized by its odor.
70. What is the test for Sodium Salts?
The sodium salts color an alcohol flame intensely yellow.
71. *How would you distinguish Ferrous from Ferric Salts?
Potassium ferricyanide gives a blue color with ferrous salts, and an olive green color with ferric salts.
72. *Give a reliable test for Lead Salts.
 H_2SO_4 gives a white precipitate with salts of lead. The precipitate is insoluble.
73. *How would you test for Salts of Mercury?
(a) Potassium Iodide gives a green precipitate with mercurous salts and a red precipitate with mercuric salts.
(b) A plate of copper placed in a solution of mercury will be coated with the metal.
74. *How would you test for Arsenic in the presence of Antimony?
Heat a strong solution of caustic soda in a test-tube. Add zinc and the solution containing the arsenic and antimony. Place over the mouth of the tube a piece of filter paper moistened with test solution of silver nitrate. If arsenic is present the spot of silver will be blackened.
75. *How would you determine the strength of acids?
By volumetric alkali solution.
76. *How would you determine the strength of Alkalies?
By volumetric acid solution.
77. What is the official name of the following formula?
 $\text{Al}_2\text{K}_2(\text{SO}_4)_4, 24\text{H}_2\text{O}$.
Alumen.
78. Name three salts of Zinc that are official.
Zinci Carbonas Praecipitatus, Zinci Acetas, Zinci Bromidum.

79. *In what Pharmacopoeal process is the Cyanide of Silver made use of?
In the extemporaneous preparation of hydrocyanic acid.
80. Give formulæ for Calomel and Corrosive Sublimate.
 Hg_2Cl_2 , Calomel. HgCl_2 , Corrosive Sublimate.
81. How is White Precipitate prepared?
By adding ammonia water to a solution of corrosive sublimate.
82. What soluble compound of Antimony is recognized in the U. S. P.?
Antimonii et Potassii Tartras.
83. How can gases be liquified?
By pressure.
84. *Define Calorie.
It is the amount of heat necessary to raise the temperature of one gram of water one degree Centigrade.
85. What is Spontaneous Combustion?
When organic substances are oxidized with sufficient rapidity to raise the temperature to the point of ignition, the process of burning is known as spontaneous combustion.
86. What is an Oxide?
A binary compound of oxygen.
87. How is Glacial Acetic Acid made?
By distilling fused sodium acetate with concentrated sulphuric acid. The distillate is glacial acetic acid.
88. What advantage has NaClO_3 over KClO_3 ?
It is sixteen times more soluble.
89. What is the standard temperature for specific gravity of liquids?
 25°C 77°F .
90. In case of accidentally spilling Spirits of Nitro-glycerine. what precaution would you take and what effect would it have?

Add a solution of Potassium Hydroxide at once. It causes decomposition.

91. How is Phosphoric Acid prepared?
By acting on phosphorus with bromine and dilute nitric acid.
92. What official compound contains Sulphur loosely combined?
Carbon Disulphide.
93. What are the functions of a Chemical Symbol?
(a) It is shorthand for the name of the element.
(b) It represents one atom of the element.
(c) It stands for a constant weight of the element.
(d) Symbols represent single and equal volumes of gaseous elements.
94. What are the functions of a Chemical Formula?
(a) It indicates the names of the elements.
(b) Its symbol or symbols, together with the sub-figures, show the number of atoms in the molecule.
(c) It stands for a constant weight of a compound, the molecular weight.
(d) It represents two volumes of the substance, if volatilizable, in the state of gas or vapor, and the number of volumes of gaseous elements from which two volumes of any gaseous compound were obtained.
95. How is Chemical Force distinguished from other forces?
Chemical force is exerted only between definite weights and volumes of matter, and it produces an entire change of properties in the bodies on which it is exerted.
96. Distinguish between Carbonates, Hydrocarbons and Carbohydrates.
(a) Carbonates are compounds that contain the group CO_3 .
(b) Hydrocarbons are compounds of carbon and hydrogen.
(c) Carbohydrates are carbon compounds that contain hydrogen and oxygen in the proper proportion to form water.
97. Give three rules governing the formation of Salts.
(a) The direct union of two elements forms salts that end in "ide."

- (b) Acids ending in "ous" unite with bases to form salts that end in "ites."
(c) Acids that end in "ic" unite with bases to form salts that end in "ates."
-

URINARY ANALYSIS.

98. What is the object of analyzing Urine?
To detect the presence of abnormal constituents and to determine an excess or deficiency of the normal constituents.
99. What are the most common abnormal constituents?
Albumen, blood, pus, bile and sugar.
100. What reaction has Urine?
Fresh urine has a slightly acid reaction.
101. Turbidity in fresh Urine is due to what?
Turbidity may be due to urates, phosphates, or pus. Urates redissolve when the urine is warmed, phosphates redissolve on the addition of acetic acid; pus is detected by the microscope.
102. What should be the specific gravity of Urine?
From 1.015 to 1.025. Any considerable deviation from these limits would suggest a possible pathological condition.
103. How would you test for Albumen in Urine?
Place a small quantity of urine in a test-tube, add a drop of acetic acid and apply heat in such a manner that the upper portion only of the fluid will be heated. If albumen is present the urine will become turbid, more or less so in proportion to the amount of albumen present.
104. How would you test for Albumen by the use of Nitric Acid?
Place a small quantity of nitric acid in a test tube, then pour the urine in such a way that it will float upon and not mix with the acid. A white zone will form at the line of contact of the two liquids if albumen is present.
105. How would you test for Blood in Urine?
Urine containing blood is usually highly colored and the corpuscles appear under the microscope as reddish circular discs, either

single or laid together in strings resembling piles of coin. Blood may also be detected by adding tincture of guaiac and an aqueous solution of peroxide of hydrogen to the urine. If blood is present the mixture will turn blue; the rapidity of formation of which depends upon the amount of blood present.

106. How would you detect Pus in Urine?

The presence of pus is easily detected by the microscope. Urine containing pus will effervesce with hydrogen peroxide.

107. Give two reliable tests for Sugar in Urine.

Add picric acid solution and liquor potassa to the urine and boil. If sugar is present a dark mahogany color will be developed.

To a portion of clear urine in a test tube add a few drops of solution of copper sulphate; add solution of potash or soda until the precipitate first formed is redissolved, then slowly heat the solution to near the boiling point. A yellowish-red or red precipitate will form if sugar is present.

108. What is the test for Bile in Urine?

Add sulphuric acid and sugar and apply heat. If bile is present the color will change from cherry red to purple, or give a play of colors.

ADDITIONAL QUESTIONS

AND ANSWERS.

1. **What tincture is made from an animal product?**
Tincture of Musk.
2. **How is Vanillin obtained?**
Either synthetically or from vanilla.
3. **What Infusion is made by maceration and expression?**
Compound Infusion Senna.
4. **What Elixirs are official?**
Elixir Aromaticum.
Elixir Glycyrrhizae.
5. **What Medicinal substance is obtained from the ox?**
Fel Bovis. The fresh bile.
6. **Give the official name for Normal Salt Solution?**
Liquor Sodii, Chloridi Physiologicus.
7. **How is Oil Turpentine rectified?**
By treating it with Solution of Sodium Hydroxide.
8. **Is Croton Oil a volatile or a fixed oil and from what is it obtained?**
A fixed oil obtained from Croton Tiglium by expression.
9. **From what is Peletierine Tartrate obtained?**
Pomegranate.
10. **Why must Phosphorus be kept under water?**
It catches fire when exposed to the air.
11. **What official volatile oil is distilled from a by product?**
Rectified Oil of Tar.
12. **Name a liquid alkloid that is official?**
Spartine Sulphate.

13. How is *Strophanthus* directed to be assayed?
Biologically.
14. How is *Theophyllina* obtained?
Either from *Thea Sinensis* or prepared synthetically.
15. What caution should be observed in handling *Spirits of Nitroglycerin*?
Great care should be used not to spill any, as it forms a dangerous explosive when the alcohol has evaporated.
16. What is *Ammonium Valerianate*?
A compound of *Ammonia* and *Valeric Acid*, having a somewhat varying composition.
17. Why were *Mucilage of Sassafras Pith* and *Mucilage of Elm* dropped from the U. S. P.?
On account of their unstable character.
18. How many articles have been dismissed from U. S. P. VIII?
243.
19. How many articles have been added to U. S. P. IX.?
67.
20. What is *Hypophysis Sicca*?
The posterior lobe obtained from the Pituitary body of cattle, cleaned, dried and powdered.
21. Why are so many drugs directed to be assayed Biologically?
Because it has, so far, been impossible to make a satisfactory chemical assay.
22. What *Meustruae* used in making *Extracts*?
Tartaric Acid.
Benzine.
Sulphuric Acid.
Ammonia Water.
Chloroform.
Starch.
Glucose.
Hydrochloric Acid.
23. How many *Fluid Extracts* dropped from the U. S. P. IX.?
38.

24. What Magma are official?
Bismuth and Magnesia.
25. What salts of Strychnine are official?
Nitrate and Sulphate.
26. What is the official name of Picric Acid?
Trinitrophenol.
27. What important gas has been added to the U. S. P.
IX.?
Nitrous Oxide Gas.
28. What Oleoresins are made from fruits?
Oleoresina Patroselini.
Oleoresina Capsici.
Oleoresina Cubeba.
Oleoresina Piperis.
29. What Oleate is official?
Oleatum Hdrargyn.
30. What is Nux Vomica?
The dried ripe seeds of Strychnos Nux Vomica (Fam. Loganaceae).
31. What Volatile Oil must state on the label whether made from the seed or made synthetically?
Volatile Oil Mustard.
32. How many Fluid Extracts are directed to be assayed biologically?
Three.
33. What is Magma Bismuthi?
A preparation containing Bismuth Sub Nitrate and Bismuth Hydroxide in suspension in water.
34. What is Colchicine?
An alkaloid obtained from Colchicum.
35. What is Copaiba?
An Oleoresin derived from South America species of Copaiba (Fam. Leguminosae).
36. Name an Oil made from roasted seeds and state what it is used for.
Oil Theobroma, used largely for making Suppositories.

37. What official Volatile Oil is made from an unripe fruit?
Oleum Cubebae.
38. What is the official name of Methyline Blue?
Methylthioninae Chloridum.
39. Name a Volatile Oil made by maceration and distillation.
Oil Bitter Almonds.
40. What is Creosote?
A mixture of Phenols and Phenol derivatives chiefly guaiacol and cresol, obtained during the distillation of wood tar.
41. What is Creosote Carbonate?
A mixture of carbonates of various constituents of creosote, chiefly guaiacol and cresol.
42. What Official drug is usually mixed with water to insure safety in shipping.
Trinitrophenol.
43. From what animals are Dried Thyroids and Dried Suprarenals obtained?
Animals which are used for food by men.
44. How much oxygen must Sodii Perboras contain?
Nine per cent.
45. What two official drugs are directed to be kept in bottles made of hard glass?
Potassii Hydroxidum.
Sodii Hydroxidum.

MISCELLANEOUS

Questions in Pharmacy and Chemistry.

1. *What is Pharmacognosy?
Pharmacognosy is that branch of the study of medicines which treats of the natural origin, appearance, structure and other means of identification of organic drugs.
2. What is Therapeutics?
The science of applying medicines.
3. What is Microscopy?
The study which treats of the microscope and its uses.
4. *What is a Menstruum?
The solvent used in the process of percolation is technically known by that name.
5. How may recovered distilled alcohol be purified?
By treating it with potassium permanganate, allowing it to stand for a few days and filtering.
6. What are the ingredients in Capsicum Plaster?
Oleoresin of Capsicum.
Rubber Plaster.
7. *Give the formula for the official Suppository.
Glycerin.
Monohydrated Sodium Carbonate.
Stearic Acid.
Water.
8. When not otherwise specified what percentage of Moisture is permitted in Chemicals?
Five per cent.
9. Name the official Triturate.
Trituration of Elaterin.
10. What Cataplasma was added to the U. S. P.

VIII. and dropped again in U. S. P. IX. ?

Cataplasma Kaolini.—Under the name of **Cataplasma Kaolini**, a mixture of kaolin, boric acid and thymol is made into a soft mass with glycerin and perfumed with methyl-salicylate and oil of peppermint. Doubtless intended to take the place of certain propriety antiphlogistic pastes.

11. *How are Aloes purified?

Heat the aloes on a water bath until melted; then mix them with alcohol, strain and evaporate until the mass becomes brittle when cooled.

12. *How is Turpentine deodorized?

By shaking the oil with lime water, then distilling the mixture, and separating the oil from the water.

13. In making chemical tests what amount of time shall be allowed for the reaction when no time is specified?

Five minutes.

14. What is meant by the term non-weighable?

A quantity which is not more than 0.0005 Gm.

15. *How is Croton Oil extracted from the seed?

By expression.

16. *In what different ways is Castor Oil extracted from the seed?

- (a) By cold expression.
- (b) By expression with heat.
- (c) By percolation with alcohol.
- (d) By decoction.

17. *How would you test for Nitrobenzol in Oil of Bitter Almond?

Treat the oil with potassium permanganate; if it is pure the odor will be destroyed, but if it contains Nitrobenzol it will still retain the odor of bitter almonds.

18. What is the test for Dementholized Oil of Peppermint?

The dementholized oil is nearly odorless and does not become thick and deposit crystals when subjected to a freezing temperature. difference from pure oil.

19. *How would you test for Cotton Seed Oil in Olive Oil or Lard Oil?

Shake a small quantity of the suspected oil in a test tube with an alcoholic solution of silver nitrate containing a few drops of nitric acid. If the oil is pure it should not become reddish or brown nor form a dark ring at the line of contact of the two liquids.

20. *What official preparation of Glycyrrhizin? How prepared?

Ammoniated Glycyrrhizin.

Prepared by extracting the glycyrrhizin with ammonia water. Precipitating it with sulphuric acid, washing and drying on plates of glass so that the finished salt may be obtained in scales.

21. What is the distinguishing test between powdered Acacia and powdered Tragacanth?

Acacia is soluble in water, Tragacanth is only partially soluble.

22. What special care should be taken in writing the abbreviations for grain and gramme?

Always write Gm. for gramme and Gr. for grain.

23. *Why was the oil boiled in the preparation of Phosphorated Oil; and why is Ether used?

(a) The oil is heated to expel air and traces of water, which would aid in oxidizing the phosphorus.

(b) The ether assists in the preservation of the preparation and renders the oil less disagreeable to the taste.

24. How is "red" or Amorphous Phosphorus prepared?

It is prepared by allowing phosphorus to remain for several days in an atmosphere of carbon dioxide, at a temperature varying from 215° C. to 250° C.

25. *What is the chemical formula, use and dose of Trio-iodomethane?

CHI_3 . Used as an alternative, antiseptic and anaesthetic. Dose 4 gr.

26. *What is the test for Aldehyde in alcoholic liquids?

An alcoholic liquid that contains aldehyde will turn brown when mixed with potassium hydrate test solution.

27. What is the test for Tannin in Whiskey?
When more than traces of tannin are present it will turn dark green when treated with ferric chloride test solution.
28. *How would you test for acidity in Ether and Acetic Ether?
When they contain acid they will turn blue litmus paper red.
29. Which contains the more Colchicine, the corm or the seeds?
Seeds, must contain 0.45 per cent.
30. How would you clear a cloudy solution of Morphine Acetate?
Add Acetic Acid.
31. What fat is miscible with water?
Hydrous Wool-Fat.
32. What is Magnesia of the U. S. P.?
Magnesium Oxide.
33. *What is the chemical formula for Laughing Gas?
How prepared?
 N_2O . Prepared by heating ammonium nitrate and purifying the gas.
34. *What is Ethereal Oil?
A volatile liquid consisting of equal volumes of heavy oil of wine and ether.
35. How many Tinctures of Rhubarb are official?
Give Latin name of each.
Two.
Tinctura Rhei.
Tinctura Rhei Aromatica.
36. What official salt is formed when a solution of Na_2CO_3 is added to a solution of $ZnSO_4$?
Zinci Carbonas Praecipitatus.
37. *What is Hall's Solution?

A solution of Strychnine, containing 1 gr. of Strychnine to the fluid ounce.

38. *What is Magendie's Solution?

A solution of Morphine containing 16 gr. of Morphine to the fluid ounce.

39. What official preparations contain Expressed Oil of Almond?

Emulsion of Oil of Turpentine.

Ointment of Rose Water.

40. What Liquors have been added to the U. S. P. IX.?

Liquor Hypophysic.

Liquor Sodii Chloridi Physiologicus.

Liquor Sodii Glycerophosphatis.

41. What is Talc?

Magnesium Silicate.

42. What is the strength of Fluidextracts?

1 cc. represents the strength of one gram of the drug.

43. What change has been made in the method of directing chemical tests?

In former Pharmacopoeias nearly every direction began "If Gm. be dissolved" this has been changed to "Dissolve Gm."

44. What is meant by the U. S. P. Standard of Purity and Strength?

It applies only to drugs or preparations sold or used as medicines.

45. *How would you make Rochelle Salts?

Neutralize a solution of Potassium Bitartrate with Sodium Carbonate.

46. What are the official preparations of Jalap?

Pulvis Jalapae Compositus,

Resina Jalapae.

Pilulae Catharticae Compositae. (From Resin).

47. What are the Official Preparations of Opium?

Extractum Opii.
Mistura Glycyrrhizae Composita (from Camphorated Tincture of Opium).
Opii Pulvis.
Opium Deodoratum.
Opium Granulatum.
Pulvis Ipecacuanhae et opii.
Tinctura Opii.
Tinctura Opii Camphorata.
Tinctura Opii Deodorati.

48. What are the official preparations of Capsicum?

Oleoresina Capsici.
Tinctura Capsici.

49. *What two official Preparations are made by using Salicylic Acid?

Sodium Salicylate.
Physostigmine Salicylate.

50. *What is the difference between Calcium Chloride and Chloride of Lime?

- (a) Calcium Chloride is a true salt of calcium, CaCl_2 , made by acting on calcium carbonate with hydrochloric acid.
(b) Chloride of Lime is made by exposing calcium hydrate to the action of chlorine and has the chemical formula of CaOCl_2 . The chlorine is very loosely combined.

51. *State the difference between Prepared Chalk and Precipitated Chalk?

- (a) Prepared chalk is native friable calcium carbonate freed from its impurities by elutriation.
(b) Precipitated chalk is calcium carbonate made by precipitating a solution of calcium chloride with sodium carbonate.

52. What useful by-product is obtained when Myrrh is macerated with Alcohol?

The undissolved gum makes, a good mucilage.

53. *Name two sources of Benzoic Acid.

- (a) Found naturally in benzoin.
(b) Prepared artificially from the urine of cattle.

54. What is the distinguishing test between true Ben-

zoic Acid and Synthetic Acid?

The acid sublimed from benzoin has a lower melting point and is more soluble in water than the synthetic acid.

55. *What is the test for the purity of Castor Oil?

The oil should not acquire a blackish-brown color when shaken with a mixture of carbon disulphide and sulphuric acid.

56. What is Magma Bismuthi?

An aqueous solution of bismuth made by dissolving bismuth and ammonium carbonate in water with just enough of water of ammonia added to cause it to retain a faint odor of ammonia.

57. *By what simple test can Dextrine be distinguished from Acacia?

By the odor. Dextrin has the odor of potato oil.

58. Why not use a high heat in the preparation of Oleate of Mercury?

A high heat would liberate metallic mercury.

59. *What is Auri et Sodii Chloridum? Use?

- (a) A mixture of equal parts by weight of dry Gold Chloride and Sodium Chloride.
- (b) Used as an alterative.

60. What change has been made in the formula for Ammonia Liniment?

Use Sesame Oil instead of Cotton Seed Oil.

61. What is the official Latin Title of Colchicum Root?

Colchici Cormus.
Colchicine. 0.35 per cent.

62. *What is Resorcin?

Metadihydrobenzene.

63. How is Salicylic Acid prepared commercially?

By treating sodium phenol with carbon dioxide.

64. *What is the difference between Scheel's HCy and the U. S. P HCy?

- (a) Scheel's Acid contains about 5 per cent. of absolute HCl.
 (b) The U. S. P. Acid contains 2 per cent of absolute HCl.

65. *What menstruum is best to use in the preparation of Senna? Why?

Water and diluted alcohol are the best solvents for the virtues of Senna. They extract the cathartic principles and leave the principles which cause griping. These would be extracted by strong alcohol and the cathartic principles would be left.

66. *What effect has heat on Rhubarb?

Heat changes its action from cathartic to astringent.

67. In what different forms is Ferrous Sulphate official?

Ferri Sulphas.

Ferri Sulphas Exsiccatus.

Ferri Sulphas Granulatus.

68. How is the Ferri Sulphas Granulatus prepared?

Granular ferrous sulphate may be made by adding a strong solution of ferrous sulphate to alcohol, when it will be precipitated in the granular form.

69. What U. S. P. preparation is made by Elutriation?
 Creta Praeparata.

70. *What are Elixirs? Name the ingredients in Aromatic Elixir.

Elixirs are aromatic, sweetened, spiritous preparations containing small quantities of active medicinal substances.

Aromatic Elixir contains:

Compound Spirit of Orange.

Alcohol.

Purified Talc.

Syrup.

Distilled Water.

71. What change was made in formula for compound mixture of glycyrrhiza?

Granulated Acacia is used instead of mucilage.

72. For what purpose was Purified Talc introduced into the U. S. P. 1900?

To take the place of Precipitated Phosphate of Calcium in the preparation of aromatic waters and elixirs.

73. *How many official liquors? In what different ways are they prepared?
(a) Twenty-five.
(b) Made by chemical solution in water and simple solution in water.
74. *By what two processes is Glycerine manufactured?
(a) As a by-product in the saponification of fats and oils in making soap or lead plaster.
(b) By decomposing fats and oils by pressure and superheated steam.
75. *How may Chloral be converted into Chloroform?
By treating an aqueous solution of it with a strong alkali.
76. *What effect has exposure on Spirits of Nitrous Ether? How can it be prevented?
When exposed it becomes acid. It may be kept neutral by adding a small quantity of sodium or potassium carbonate.
77. *What is the official name and the U. S. P. definition of Pyrogallic Acid?
(a) Pyrogallol.
(b) A triatomic phenol obtained chiefly by the dry distillation of gallic acid.
78. *What two official preparations contain potassium Iodide in combination with Iodine? Why is it used?
Tincture of Iodine.
Liquor Iodi Compositus.
Used in each preparation to dissolve the iodine.
79. What word has been substituted for cubic centimeter?
Mils.
80. *What is Saponification?
The term is now extended in chemistry so as to include any pro-

cess or reaction in which an alkali decomposes any ethereal salt or alkyl salt. (Atfield.)

81. *What is the Chemical difference between Sapo and Sapo Mollis?

Sapo is Sodium Oleate.
Sapo Mollis is Potassium Oleate.

82. What is the precipitate which forms in a solution of Lead Subacetate?

Lead carbonate caused by the absorption of carbon dioxide. It may be redissolved by adding acetic acid.

83. How can Tincture of Iodine be decolorized?

By adding sodium hyposulphite.

84. What effect has Nitric Acid on Volatile Oils?

Strong nitric acid decomposes them.

85. What effect has Iodine on Volatile Oils?

The terpenes will explode with iodine.

86. *What is Amorphism?

A term used in chemistry to denote the absence of regular structure in a body.

87. *What are Isomeric Compounds?

Compounds consisting of the same elements in the same proportions, but having different properties.

88. Isomerism is of two kinds. Name them.

Metameric. Polymeric.

89. *Define each of the above terms.

(a) Metameric isomerism is a term applied to compounds which have the same percentage composition and the same molecular weights.

(b) Polymeric isomerism is a term applied to compounds which have the same percentage composition but different molecular weights.

90. *What is Isomorphism?

The quality of assuming the same crystalline form though composed of different elements.

91. What is the chief source of Alcohol and how is it

made?

- (a) Corn and other grain containing starch.
- (b) By mashing to convert the starch into sugar, fermenting to convert the sugar into alcohol and distillation to separate the alcoholic liquor. This liquor is the crude whiskey from which alcohol is obtained.

92. What is the meaning of Assay?
To determine the amount of a given substance in a compound.
93. *What is meant by Ferrous and Ferric Salt?
A Ferrous salt is one in which the iron exerts bivalent activity.
A Ferric salt is one in which the iron exerts trivalent activity.
94. What is a Sulphate?
It is a salt formed by the action of Sulphuric Acid on a base.
95. What is an organic Acid?
An animal or vegetable acid.
96. What is Oleic Acid?
An organic acid obtained as a by-product in the manufacture of candles and glycerin.
97. What is a Mother Liquor?
The liquid remaining after crystals have formed.
98. *What is an Aldehyde?
Aldehyde is alcohol from which two atoms of hydrogen have been extracted.
99. *How is Aldehyde made?
By acting on alcohol with oxidizing agents.
100. *How many Aldehydes can be produced?
Just as many aldehydes can be produced as there are alcohols to produce them from.
101. What acid would be formed by oxidizing Acetic Aldehyde?
Acetic Acid.
102. Name four official derivatives of Aldehyde.
Paraldehydum,

Chloral,
Chloroformum
Iodoform.

103. *What is the chemical name for Chloroform?
Trichloro-methane.
104. *What is Chloral chemically?
Trichloraldehyde.
105. What is Iodoform chemically?
Tri-iodomethane.
106. What is the test for free Chlorine in Chloroform?
When chloroform is agitated with distilled water and the water separated it should not be affected by potassium iodide, T. S.
107. *What is the chief adulterant of Iodoform with the test?
Picric acid is the chief adulterant. Detected by adding the iodoform to water. If picric acid is present the water will be colored yellow and the solution will also color silk or cotton cloth.
108. Write an equation for the manufacture of Ether.

$$\text{C}_2\text{H}_5\text{OH} + \text{H}_2\text{SO}_4 = \text{C}_2\text{H}_5\text{HSO}_4 + \text{H}_2\text{O}.$$

$$\text{C}_2\text{H}_5\text{HSO}_4 + \text{C}_2\text{H}_5\text{OH} = (\text{C}_2\text{H}_5)_2\text{O} + \text{H}_2\text{SO}_4.$$
109. Write the chemical formula for Methyl Alcohol
Amyl Nitrite, Ethyl Nitrite.
(a) CH_3OH , (b) $\text{C}_5\text{H}_{11}\text{NO}_2$, (c) $\text{C}_2\text{H}_5\text{NO}_2$.
110. *What is an Alum?
When two trivalent and two univalent elements unite with a sulphate radical they always combine with twenty-four molecules of water and are called alums. As, $\text{Al}_2\text{K}_2(\text{SO}_4)_4 \cdot 24\text{H}_2\text{O}$.
111. What is Iron Alum?
A form of alum in which the aluminum is displaced by iron. As, $\text{Fe}_2(\text{NH}_4)_2(\text{SO}_4)_4 \cdot 24\text{H}_2\text{O}$.
112. *Why is HNO_3 used in the manufacture of Liquor Ferri Tersulphatis?
Used to change the iron from the ferrous to the ferric condition.
113. What is Quinine?
An alkaloid obtained from the bark of various species of Cinchona.
114. *What impurity is permitted in Quinine and how much?

The U. S. P. of 1890 allows it to contain a trace of the other Cinchona alkaloids. The U. S. P. of 1900 no impurities.

115. *What are the official Salts of Quinine?

Quinine Salicylate.
Quinine Dihydrochloridum.
Quinine Sulphate.
Quinine Bisulphate.
Quinine Hydrochloride.
Quinine Hydrobromide.
Quinine Valerianate Tannas.
Quinine et ureae Hydrochloridum.

116. How is Quinine Bisulphate prepared?

Prepared by dissolving the quinine sulphate in dilute sulphuric acid, evaporating the solution and crystallizing the bisulphate.

117. How many drugs of animal origin were added to the U. S. P. IX.?

Nine.

118. Name the most important one with dose.

Serum Antitetanicum. Average dose 10.000 units. Immunizing dose, 1500 units.

119. What is Camphoric Acid?

A dibasic organic acid obtained by the oxidation of camphor.
Dose, 15 gr.

120. Give the official name of Glycerite of Carbolic Acid.

Glyceritum Phenolis.

121. *How would you prepare Hydrocyanic Acid extemporaneously?

By acting on silver cyanide with hydrochloric acid.

122. *What takes place when HCy is allowed to stand? What is the precipitate, and how can it be prevented?

When diluted hydrocyanic acid is kept in stock for a long time it becomes decomposed. A black precipitate is formed which contains paracyanogen. This decomposition may be prevented by the addition of a small quantity of sulphuric or hydrochloric acid.

123. How do you deodorize Iodoform?

By the use of coffee, tonka-bean or vanilla.

124. How would you test for Fusel Oil in Alcohol or Whiskey?

Add a small quantity of paper and evaporate; the last portion should not have a disagreeable odor.

125. *What are Alcohols?

Alcohols are hydrates of hydrocarbon radicals.

126. *What are Ethers?

Ethers are oxides of hydrocarbon radicals.

127. *What are Compound Ethers?

They are salts formed by the action of acids on alcohols.

128. What are the chief adulterants of Arsenic?

Plaster of Paris and powdered glass.

129. What effect has exposure on salts made by calcination?

All salts made by calcination will absorb carbon dioxide and water from the air and go back into the hydrate carbonate.

130. How would you dissolve Starch?

Use a concentrated solution of zinc chloride or calcium chloride.

131. Why is precipitated Zinc Carbonate made from hot solutions?

If cold solutions of zinc sulphate and sodium carbonate are mixed neutral zinc carbonate is formed. This carbonate quickly decomposes, carbon dioxide being evolved, which upon escaping makes a portion of the precipitate soluble. This loss is prevented by conducting the precipitate at the boiling point.

132. *What would you add to Cacao Butter for Summer use?

Add wax to raise the melting point.

133. *What are Waxes?

They are fats of high melting points. Chemically they are compound ethers.

134. *What would you dispense for "Phenic Alcohol?"
Carbolic Acid.
135. Why not dispense Sodium Hypophosphite with Salts of Silver or Mercury?
The sodium hypophosphite gives a white precipitate which would rapidly turn brown or black, owing to the liberation of the respective metals.
136. *What are Alkaloids?
Alkaloids are saline principles obtained from the animal and vegetable kingdoms. They are of definite chemical composition, alkaline reaction and possess the property of uniting with acids to form salts. They are generally the active constituents of the plants in which they are found.
137. How are they divided with regard to their chemical composition?
Chemically they are either amides or amines.
138. *Which of the above classes are liquids and which are solids?
The amides are solids. The amines are liquids.
139. How do Alkaloids unite with Acids to form salts?
They unite as ammonia does, without displacing hydrogen; hence they are called compound ammonias.
140. *What is the test for Morphine?
Morphine turns red with nitric acid, and the acid is also colored.
141. *What is the test for Codeine?
When codeine is treated with nitric acid the crystals will turn red, but the acid even when warmed will only acquire a yellow color. Difference from and absence of morphine.
142. *What is the test for Strychnine?
Strychnine gives a play of colors when treated with potassium bichromate and sulphuric acid.
143. *How is Brucine detected in Strychnine?
When treated with nitric acid the acid should not turn more than faintly yellow (absence of brucine).
144. What is the test for Quinine?

An aqueous acidulated solution of quinine when treated with bromine water and an excess of ammonia water will acquire an emerald green color. In concentrated solutions it will form a green precipitate.

145. *How would you distinguish between Tannic Acid and Gallic Acid?

An aqueous solution of gallic acid should not precipitate alkaloids, gelatin nor albumen (difference from and absence of tannic acid).

146. What is the official Latin title of Ca and CaO?
Ca is Calcium. CaO is Calx.

147. *What impurity is allowed in Pottasium Bitartrate, and how much?

Calcium tartrate is permitted by the official test, if not in greater proportion than 1 per cent.

148. *What is Fermentation?

Fermentation is the process whereby new and useful compounds are formed by the decomposition of certain organic substances, when exposed to the action of water, air and a warm temperature.

149. *What is Putrefaction?

When offensive, or worthless substances are formed by the decomposition of organic matter, it is called putrefaction.

150. What causes Fermentation?

Authorities differ as to the cause. By some it is regarded as a chemical process. Others claim that it is due to the presence of very minute organisms.

151. *Into what two classes are ferments divided?

- (a) Organized, or physiological ferments.
(b) Unorganized, or soluble nitrogenous ferments.

152. What is produced when sugar is allowed to ferment?

Alcohol and carbon dioxide.

153. How would you test for alcohol in Oil of Lemon?

If the oil contains alcohol it will give a blue flame when burned in the dark.

154. What is Ether chemically?
Ethyl Oxide.
155. Syrup of Lime is an antidote for what three poisons?
Carbolic Acid, Creosote and Oxalic Acid.
156. *State why Animal Charcoal is sometimes objectionable as a decolorizing agent.
When used to deodorize solutions containing organic matter it is liable to absorb the active constituents.
157. *What do you understand by Extractive?
Extractive is the peculiar principle of drugs that oxidizes and turns brown and almost always precipitates in liquid preparations.
158. How would you proceed to powder Nux Vomica?
First steam the drug, then dry it, after which it can be more readily powdered.
159. How should Terebene be dispensed?
Either as an emulsion or in capsules.
160. *How should Cantharides be kept?
They should be kept in well-closed vessels and protected from mites by the addition of chloroform or carbon disulphide.
161. *How should Ergot be kept?
It should be only moderately dried, kept in a close vessel, and a few drops of chloroform added from time to time to prevent the development of insects.
162. How is Acetanilid prepared?
Acetanilid is made by heating a mixture of aniline and glacial acetic acid to the boiling point. The cooled congealed residue is purified by sublimation or recrystallization.
163. *What is the test between Carbolic Acid and Creosote?
Carbolic acid coagulates albumen or collodion. Creosote does not.
164. *What is the distinguishing test between a solution of Normal Lead Acetate and a solution of

Lead Subacetate?

Norman lead acetate does not precipitate an aqueous solution of acacia, but a solution of the subacetate forms a precipitate even in very dilute solutions.

165. Substances labeled with an official synonym must comply with what standard?

The standard test and official requirements demanded for the official article.

166. *What are the Poisonous liquors of the U. S. P.?

Liquor Acidi Arsenosi.
Liquor Arseni et Hydrargyri Iodidi.
Liquor Hydrargyri Nitratiss.
Liquor Iodi Compositus.
Liquor Plumbi Subacetatis.
Liquor Plumbi Subacetatis Dilutus.
Liquor Potassi Arsenitis.
Liquor Sodii Arsenatis.
Liquor Zinci Chloridi.
Liquor Formaldehydi.
Liquor Cresolis Compositus.

167. What U. S. P. preparation contains Cochineal?

Compound Tincture of Cardamom.

168. Give two examples of upward precipitation.

Pepsin and Valerianate of Zinc.

169. How would you test for water in Alcohol?

Add anhydrous copper sulphate to the alcohol. If it contains water, the copper sulphate will turn blue.

170. Give the Latin name of the official Antidote.

Ferri Hydroxidum Gum Magnesii Oxido.

171. What Salts of Morphine are official?

Morphine Sulphate.
Morphine Hydrochloride.

172. Which is the most unstable Salt of Morphine?

Morphine Hydrochloride.

173. *Why is Nitric Acid used in Solution of Chloride of Zinc?

Used to oxidize the iron so that it will be precipitated by the ad-

dition of the zinc carbonate.

174. What is formed by acting on Oil of Cloves with Potassium Hydrate?

Potassium Eugenate, a substance closely allied to soap.

175. How would you prepare Benzointed Lard for summer use?

When Benzoinated Lard is to be kept or used during warm weather 5 per cent. or more of the lard should be replaced by white wax.

176. How many pints in a Liter?

2.11.

177. How many Cubic Centimeters in a Fluid Ounce?

30.

178. How should Pyroxylin be kept and why?

Should be kept in paper boxes.

When kept in air tight containers it undergoes spontaneous combustion.

179. How is the odor of Vanilla developed?

By burying it in hot sand until it sweats.

180. What are Eclectic Resinoids?

They are a class of preparations made by precipitating an alcoholic fluid extract of a drug by adding it to a large quantity of water and collecting the precipitate.

181. Are they the true active principles of the drugs?

They are not the true active principles although the names are often exactly the same. They vary greatly in strength and have been the cause of dangerous mistakes.

182. What causes the bleaching of the corks in bottles that contain Volatile Oils?

It is said by Remington to be due to ozone.

By Atfield to be due to Peroxide of Hydrogen.

183. What two acids in Opium?

Meconic Acid, Lactic Acid.

184. How is Glucose prepared artificially?

By acting on starch with very weak sulphuric acid.

185. How is H_2SO_3 made from H_2SO_4 ?
Heat sulphuric acid and charcoal together and pass the resulting sulphurous acid gas into distilled water.
186. What is the test between Alkaloids and Glucosides?
Glucosides in solution should not give a precipitate with tannic acid T. S. or other reagents for alkaloids. (Difference from and absence of alkaloids.)
187. What is Organic Chemistry?
The branch of chemistry that treats of the carbon compounds.
188. What is Apomorphine Hydrochloride?
The hydrochloride of an alkaloid prepared from morphine.
189. What are Glucosides?
Glucosides are bodies mostly found in plants, which yield glucose as one of their products of decomposition when heated with a diluted mineral acid and water. They are sometimes the active principles of plants in which they are found, but they are more frequently combined resins, oils, alkaloids and bitter principles.
190. What is the test for Cane Sugar in Sugar or Milk?
Treat the sample of sugar with sulphuric acid, if it contains cane sugar it will turn black.
191. How are Granular Effervescent Salts made?
Granular effervescent salts are made by mixing the dry powders with dry tartaric acid and sodium bicarbonate and moistening the mixture with strong alcohol. The pasty mass is then passed through a sieve and the granules dried quickly in a hot room.
192. What are the principal adulterants of Sugar, with test?
(a) Prussian Blue and Ultramarine, used by refiners to save the expense of using bone-black.
(b) Neither an aqueous nor an alcoholic solution of sugar should deposit a sediment on prolonged standing.
193. What is Combustion?
Combustion is a variety of chemical combination in which the chemical union is sufficiently intense to produce heat and generally light.
194. What do you understand by Pulverization by Intervention?

Pulverization by intervention is the process of reducing substances to a powder, through the use of a foreign substance, from which the powder is subsequently freed by some simple method.

195. What is Caffeine Citrate?

It is simply a mixture of caffeine and citric acid.

196. What is the test for HgCl_2 in Hg_2Cl_2 ?

When Hg_2Cl_2 is washed with distilled water or alcohol the filtrate should not be affected by hydrogen sulphide T. S. or silver nitrate T. S. (absence of HgCl_2).

197. How is Oxalic Acid made?

By acting on cellulose, sugar or starch with nitric acid.

198. What action has Lead Oxide on Olive Oil?

When heated together they form a lead soap and glycerine.

199. Why is Charcoal used in the preparation of Potassium Iodide?

The charcoal is used to facilitate the deoxidation of the potassium iodate which is combined with the potassium iodide.

200. What effect has water upon Black Mustard?

When black mustard is treated with water the ferment, myrosin, becomes active and converts the potassium myronate into a pungent volatile oil which is, chemically, Allyl iso-thiocyanate.

201. What is Red Oil?

When red oil is ordered it may mean either crude oleic acid or crude oil of thyme.

202. How would you detect Potassium Iodate in Potassium Iodide?

Add some weak acid to the solution of potassium iodide, then add mucilage of starch; blue iodide of starch will be formed if potassium iodate is present.

203. How do Carbonates and Bicarbonates differ?

Bicarbonates contain double the amount of the group " CO_2 " to a given amount of a base that carbonates do.

204. What is an Acidulous Radical?

A group of elementary substances which unite with hydrogen to form acids and with bases to form salts.

205. What are Oleates?

Oleates are liquid preparations made by dissolving metallic salts or alkaloids in oleic acid.

206. What are the numbers of the official Powders?

No. 6.
No. 12.
No. 20.
No. 30.
No. 40.
No. 50.
No. 60.
No. 80.
No. 100.

QUESTIONS WITHOUT ANSWERS.

207. Give a test for the identity of Chloral.
208. What is the difference between Sublimed, Washed and Precipitated Sulphur?
209. What is the difference in the properties of an Acid and an Alkali?
210. How would you distinguish chemically between Zinc Sulphate and Magnesium Sulphate?
211. Why does Chlorine not occur in the free state?
212. What is Dextro-glucose?
213. Outline a process for the preparation of Phosphorus Pills.
214. Give percentage composition of Potassium Bromide.
215. Name all the official preparations of Mercury?
216. Give percentage strength of all the official preparations that contain Metallic Mercury.
217. What do you understand by the term Solvent?
218. What is the chemical difference between Carbo Animalis and Carbo Ligni?

219. Prepare an outline of the Pharmacy Law in your State.
220. What is meant by the combining weight of an Element?
221. Distinguish between Permanent and Temporary hardness of water.
222. What Poisons does the Poison Law in your State require you to register?
223. Does the Poison Law of your State require you to keep a Poison Register?
224. What are Local Remedies?
225. What is the English name of this compound, $\text{NH}_4\text{HCO}_3\text{NH}_4\text{NH}_2\text{CO}_2$?
226. What is official Ammonium Carbonate, chemically?
227. How may Ammonium Bicarbonate be converted into Ammonium Carbonate?
228. What is the object of making a Syrup of Lime?
229. How is Syrup of Hypophosphites with Iron made?
230. What are the ingredients in Chalk Mixture?
231. Upon what does the activity of Chlorinated Lime depend?
232. How much water of crystallization does Magnesium Sulphate contain?
233. What is the formula for Magnesium Carbonate?
234. What variety of Sugar is found in Urine?
235. How would you detect Arsenic in Zinc?
236. How can Zinc Bromide be made?
237. How is Solution of Zinc Chloride freed from

Iron?

238. What two rare metals are usually found in combination with Cerium?
239. In administering Magnesia, would you add the Magnesia to the diluent, water or milk, or the diluent to the Magnesia, and why?
240. What is the official name of this compound, $(\text{Mg Co}_3)_4\text{Mg}(\text{OH})_2$?
241. How is Bismuth Subnitrate prepared?
242. Give a brief description of Bismuth.
243. What are the ingredients in Wine of Antimony?
244. How would you antidote the above preparation?
245. What is Marsh's test for Arsenic?
246. How would you make Arsenous Acid?
247. What should be the per cent. of pure Acid in official Arsenous Acid?
248. Name some special forms of Cellulose.
249. What is No. 8 Acetic Acid?
250. What are some of the uses of Cellulose in Pharmacy?
251. How is the best Acetic Acid for medical purposes obtained?
252. What is the Latin official name of Tar?
253. How is Oil of Tar prepared?
254. What is "Salt of Sorrel" or "Essential Salt of Lemons?"
255. How do the above named salts act in removing iron rust from linen?
256. What color is produced when Iodine T. S. is

- added to Mucilage of Tragacanth?
257. What official preparation is made from **Sassafras Pith**?
 258. What principle does **Iceland Moss** contain?
 259. Under what name is **Dextrin** largely used in the arts?
 260. How is **Carmine** prepared?
 261. How can we distinguish between **Glacial Acetic Acid** and the weaker Acid?
 262. What is the composition of **Inulin**?
 263. What color reaction does it give with **Iodine**, and how does this differ from **Starch**?
 264. What does **Slippery Elm bark** contain?
 265. What sweet principle does **Glycyrrhiza** contain?
 266. What sweet principle does **Eriodictyon** contain?
 267. With what is **Argenti Nitras Dilutus** diluted?
 268. What is the melting point of **Petrolatum Spissum**?
 269. What three preparations contain free **Chlorine**, and what is the strength of each?
 270. What four official preparations contain **Tannic Acid**?
 271. What are the ingredients in **Tincture of Ipecac and Opium**?
 272. What official preparation contains **Morphine Sulphate**?
 273. What Acid is used in **Lunar Caustic**?
 274. Would you use an **Acetate** in a solution that contained **Quinine**?

275. What official preparation is made from Barium Dioxide?
276. What official Salt is formed by acting on a solution of Corrosive Sublimate with KOH?
277. What is the best solvent for Sulphur?
278. What official preparations are made direct from Iron?
279. State the difference between Benzol, Benzene, Benzin and Benzoin.
280. What is the strongest Alcohol that can be made by fractional distillation?
281. What takes place when Tincture of Catechu is kept on hand, and how can it be prevented?
282. What do you understand by the maximum density of a liquid?
283. What official drug owes its activity to adhering impurities?
284. How many official Pills contain Aloes?
285. What is used in preparing Potassa with Lime?
286. How is Moist Ferric Hydrate prepared?
287. What are the ingredients in Aromatic Spirits of Ammonia?
288. What preparation is made from Lemon Juice?
289. What is the per cent. of AgNO_3 in Argenti Nitras Dilutus?
290. What official preparation contains Dilute Hypophosphorous Acid? Why is it used?
291. What official preparations are made from Alum?
292. What three preparations contain MgO ?

293. What are the official preparations of Phosphorus?
294. Give three reliable tests for the salts of Iron.
295. What U. S. P. preparation contains Quinine Sulphate?
296. What is Daturine?
297. What is a Filter?
298. What is Lixiviation?
299. What is Lotion or Displacement washing?
300. What is Repercolation?
301. What wine is made from a Fluid Extract?
302. Describe NH_4 .
303. How do Copper and Silver occur in nature?
304. What is the official Salt of Copper?
305. Name the alcoholic preparations of Rhubarb.
306. What is Glycerin, chemically?
307. Name two vegetable and two metallic Emetics?
308. Give two sources of Acetic Acid.
309. What is the difference between Potassa and Potassium?
310. What is the difference between Alumen and Aluminum?
311. What is Barley Sugar?
312. What is the test for Methyl Alcohol in Ethyl Alcohol?
313. What is Bleaching Powder, chemically?
314. Name some U. S. P. drugs made by Sublimation.
315. What advantage has Ammonia over the fixed alkalies?

- 316. What is the use and dose of Sodium Phosphate?
- 317. What is the official salt of Cerium?
- 318. What are the U. S. P. requirements of Brandy?
- 319. Define destructive distillation and name two U. S. P. drugs made by the process.
- 320. How would you make an Emulsion of Croton Oil?
- 321. What is the test for Creosote?
- 322. Why can Syrup of Lime be made stronger than Lime Water?
- 323. What do you understand by Detannated Cinchona?
- 324. Name three official preparations made by Exsiccation.
- 325. What should be the strength of Infusions when not otherwise directed?
- 326. What is Milk of Lime?
- 327. What are Suppositories?
- 328. What is the objection to using Ointment of Chrysarobin?
- 329. What is an Anhydrous Salt?
- 330. How do cells increase in number?
- 331. What is an Impalpable Powder?
- 332. What Salt is formed when the fumes of Hydrochloric Acid come in contact with the vapors of Ammonia?
- 333. What is Gum Arabic, chemically?
- 334. What do you understand by the term Bumping?
- 335. What are the U. S. P. requirements of Jalap?

336. For what purpose are the Barium Salts used?
337. How many Alkaloids are found in Opium?
338. What is Milk of Asafoetida?
339. What is Hydrosulphuric Acid?
340. What Salt of Arsenic in Fowler's Solution?
341. What is Lac Sulphur?
342. How is Acetic Ether made?
343. What effect has Mercury on Gold?
344. What is an Amalgam?
345. What is Absolute Alcohol?
346. What is meant by the nascent state of an element?
347. What are Abstracts?
348. How many Alkaloids have been found in Cinchona Barks?
349. What Acids are found in Cinchona Barks?
350. What are the adulterants of Oil of Rose?
351. What are the official preparations of Purified Aloes?
352. What is Aloinum?
353. For what purpose was Stearic Acid made official?
354. Name several substances that are more soluble in cold water than in hot.
355. How would you decolorize Whiskey?
356. How can Tonka Bean be detected when used as an adulterant for Vanilla?
367. How would you test for Glucose in Honey?
358. For what purpose is Honey used in the Iron

preparations?

- 359. What is Malic Acid?
- 360. What is formed when Nitric Acid comes in contact with the skin?
- 361. What do Sulphites change to when exposed to the air?
- 362. What is the true chemical name of Sodium Hyposulphite?
- 363. What general synonym has been given to the preparations of the Subacetate of Lead?
- 364. How was the first Glycerine obtained?
- 365. How is Ammonium Carbonate made?
- 366. How should all salts of Silver be kept, and why?
- 367. How would you antidote Silver Cyanide and how all other salts of Silver?
- 368. Why should Glucoside not be prescribed with free acids or emulsin?
- 369. What precaution should be taken in dispensing an aqueous solution of Carbolic Acid?
- 370. What is the source of Succinic Acid?
- 371. What is the Kinetic Theory?
- 372. How many atoms to the molecule in Arsenic and Phosphorus?
- 373. What are oxidizing agents?
- 374. How should Amyl Nitrite be dispensed?
- 375. Why is Chloral incompatible with alkalies?
- 376. How would you powder Cardamom Seed and why?
- 377. Why does a mixture of White and Black Mustard

yield a more pungent volatile oil than either one does alone?

378. What principles in Coffee are destroyed by roasting?
379. For what purpose was *Elastica* made official?
380. Why is Glycerin used to adulterate Saffron?
381. Why should *Taraxicum* be gathered in the autumn?
382. How is Soap mottled?
383. What is the curd on hard water when soap is used in it?
384. What is the objection to the use of Vaseline as a base for ointments?
385. Name several commercial varieties of Opium.
386. How does Apomorphine differ from Morphine?
387. What is the source of Cod Liver Oil?
388. Define Specific Volume.
389. What is the Latent Heat of water?
390. What is the Latent Heat of steam?
391. What is the composition and properties of Cyanogen?
392. Why is Atropia used as an antidote to Opium poisoning?
393. Name several varieties of the metal Iron.
394. What is Musk?
395. Define Chemical Decomposition.
396. What is Pepsin and what are the U. S. P. requirements?

397. How many ounces in one Liter?
389. What is the composition of Donovan's Solution?
399. What is the source of Hydrous Wool-Fat?
400. Under the influence of water what will some oils deposit?
401. Define Theoretical Pharmacy and show in what respect it differs from Practical Pharmacy.
402. Complete the following chemical equations:
 $\text{Ag} + \text{HNO}_3 =$
 $\text{KOH} + \text{I} =$
403. Give mode of preparation of Chloroform and of Ether.
404. What precaution is necessary in mixing Turpentine and Sulphuric Acid?
405. What is the result when Camphor and Chloral are rubbed together?
406. How is Methyl Alcohol manufactured?
407. How is Calomel prepared and purified?
408. How would you distinguish between Antimony and Arsenic?
409. How would you distinguish between Bromides and Chlorides?
410. Name five Alkaloidol precipitants.
411. Why is Vinegar of Opium less nauseating than the Tincture of Opium?
412. Iodoform should contain what percentage of Iodine?
413. Explain why Hydrochloric Acid is used in Lunar Caustic.
414. Give the U. S. P. definition of Adeps.

CONTENTS

Acids, Inorganic	41
Additional Questions and Answers	107
Aldehyde and Derivatives	121
Alkaloids	125
Ammonia	45
Antidotes	79
Articles Added to Part I. U. S. P. IX.	59
Botany	50
Calcium	46
Cerates	37
Changes in Official Latin Titles	61
Changes in Official English Titles	63
Chemistry	93
Chemical Formulae	93
Collodions	21
Crystallization	12
Dialysis	13
Eclectic Resinoids	129
Emulsions	17
Extracts	28
Extracts, Fluid	27
Fermentation	126
Glucosides	130
Glycerites	19
Gums	32
Halogens, The	42
Honey	16
Incompatibility	81
Infusions	22
Iron	47
Liniments	22
Magnesium	45
Mercury	48
Metals, The Alkali	44
Memorizing Doses, Aid in	72

Miscellaneous Questions on Materia Medica	53
Miscellaneous Questions on Pharmacy and Chemistry	111
Miscellaneous Questions Without Answers	132
Mixtures	19
Mucilages	17
Oils, Fixed	34
Oils, Volatile	33
Ointments	36
Oleoresins	30
Per cents	49
Phosphorus	43
Pills	38
Plasters	35
Poology	71
Powders	40
Precipitation	12
Prescriptions	85
Resins	31
Serums	26
Silver	48
Soaps	33
Specific Gravity	7
Spirits	20
Sugars	32
Sulphur	43
Synonyms	64
Syrups	15
Test for Adulterants of Volatile Oils	34
Test for Codeine	125
Test for Morphine	125
Test for Quinine	125
Test for Strychnine	125
Test for Albumen in Urine	105
Test for Bile in Urine	106
Test for Blood in Urine	105
Test for Pus in Urine	106
Test for Sugar in Urine	106
Therapeutical Classification of Medicines	69
Tinctures	23
Toxicology	77
Triturations	38
Urinary Analysis	105
Vaporization	9
Vinegar	31
Water	14
Zinc	46

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